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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

Marc Garciaguirre, Tyree Burnett Jr., Joseph Flores, Rodolfo Gurrola Jr., Brook Barclift, Theo Papulis, Jeff Ramirez Ochoa, Paul Henning, Troy's Computers LLC, JB Tech Solutions LLC, Evan Feliciano, Wastenotime Developments Performance Fabrications, Brian Graber, Joseph Danson, John Prineas, Thomas Yu, and Donald Barber, individually and on behalf of all others similarly situated,

Plaintiffs,

v.

Samsung Electronics Co., Ltd.; Samsung Semiconductor, Inc.; SK Hynix Inc.; SK Hynix America Inc.; Micron Technology, Inc.,

Defendants.

Case No. 3:26-cv-6345

CLASS ACTION COMPLAINT

DEMAND FOR JURY TRIAL

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INTRODUCTION

1. This lawsuit seeks to recover for—and stop—concerted anticompetitive behavior by three oligopolists in the market for dynamic random access memory, more commonly called DRAM. DRAM is the backbone of nearly every computing device on Earth, from smartphones, to laptop computers, to data center servers. A processor reads from and writes to it constantly while a device runs; a smartphone holds several gigabytes of it; and a data-center server holds far more. No general-purpose computer functions without DRAM, and nothing substitutes for it. Three firms—Samsung, SK Hynix, and Micron—make almost all of the world's supply, together accounting for more than ninety percent of DRAM revenue.

2. Since 2022, these firms have fixed supply and prices for DRAM, engaging in conduct that makes no economic sense absent collusion and that has driven up the price of conventional DRAM (sometimes called commodity DRAM) approximately 700% in a four-year period. The DRAM oligopolists have simultaneously cut production, coordinated a pivot to HBM and exit from DDR3 and DDR4, and otherwise decreased and locked up conventional DRAM supply while prices charged up with mind-blowing scale and rapidity. Yet contrary to all economic and business logic, the DRAM oligopolists each cut conventional DRAM supply ***further***, with Micron going so far as to shutter its consumer DRAM business, Crucial, at the most profitable price point in its history. Prices continued to rise, and still Samsung, SK Hynix, and Micron continued to squeeze conventional DRAM supply, simultaneously and publicly directing their resources toward less-profitable-per-die HBM—or in some cases, simply junking conventional DRAM supply channels altogether.

3. This plan has thus far succeeded, as consumer purchasers of conventional DRAM and devices incorporating it have paid supracompetitive prices and have otherwise suffered the impacts of a distorted market crippled by the behavior of DRAM oligopolists that criminally fixed prices two decades ago—then promoted the executives that did it when they got out of prison. And these price-fixing oligopolists stand ready to recoup even more from American consumers absent intervention from this court.

* * *

4. This case centers on conventional DRAM (sometimes called commodity DRAM)—standardized memory built to industry specifications and sold for ordinary purposes, including the DDR4 and DDR5 modules in computers, the LPDDR memory in phones, and the server memory in data centers. Because a part built to a given specification performs identically regardless of which of the three firms made it, buyers treat commodity DRAM as fungible. There is a second, specialized form of DRAM—high bandwidth memory, or HBM, built by stacking memory dies for artificial-intelligence accelerators. Both forms are cut from the same scarce input: wafer capacity inside the fabrication plants, or fabs, that make the chips. Each wafer devoted to HBM is a wafer unavailable for commodity DRAM, and because HBM consumes several times the wafer area per bit, a modest shift toward HBM withdraws a disproportionate share of commodity supply. The DRAM oligopolists, Samsung, SK Hynix, and Micron, have used HBM to manipulate conventional DRAM supply, to facilitate their output- and price-fixing conspiracy, and to strengthen entry barriers.

5. No new entrant can discipline these three firms in the conventional DRAM market. A single modern DRAM fab costs fifteen to twenty billion dollars and takes years to build; the extreme-ultraviolet lithography machines it requires come from one supplier in the Netherlands, committed years ahead to the incumbents; the process recipes that make a fab yield usable chips comprise decades of accumulated trade secrets; United States export controls bar the only other producers, in China, from acquiring current-generation equipment; and even a finished chip must clear twelve to eighteen months of customer qualification before a large buyer adopts it for a product. The practical consequence is that when the three firms restrict supply, no outsider can expand output to undercut them.

6. These same three firms have in the past fixed the price of DRAM. Between 1998 and 2002, Samsung, Hynix (the predecessor of SK Hynix), and Micron, with other manufacturers, took part in a criminal conspiracy to fix the prices of DRAM sold to major American computer makers. The Department of Justice prosecuted it; Samsung pleaded guilty and paid a $300 million criminal fine, SK Hynix's predecessor pleaded guilty and paid $185 million, total criminal penalties exceeded $730 million, and several executives went to prison. Micron took part but avoided a fine by reporting the conspiracy and cooperating. Prices spiked again in 2016-2018, prompting a U.S. class action and a Chinese

government investigation into all three firms. The conduct alleged here is the third such cycle in the same market, among the same firms.

7. The current conduct began in a downturn. In late 2022, DRAM demand was weak and prices were falling. In October 2022, SK Hynix announced that it would cut production and reduce the next year's investment by more than half. Micron contemporaneously announced an immediate twenty-percent cut in wafer starts across all of its technology nodes, and later deepened it. The industry expected Samsung—lowest in cost, deepest in resources—to hold or raise output and take share, as it had in prior downturns. Instead, in April 2023, Samsung announced matching cuts after reporting a multibillion-dollar quarterly loss in its semiconductor division. None of the three used the others' retreat to expand and win customers. All three pulled back together.

8. Demand then returned in force. The growth of artificial intelligence drove buyers to acquire memory in volumes the industry had not seen—both the HBM that accelerators require and the commodity DRAM that every server, computer, and phone still needs. Meeting the supply the three firms had withdrawn, conventional DRAM prices surged: by the third quarter of 2025, conventional DRAM prices had risen roughly 171.8% year-over-year, and they rose a further 50% in Q4 2025 and approximately 93% to 98% quarter-over-quarter in Q1 2026—a compounded price increase of approximately 697% from Q3 2024 to Q1 2026. At retail, the price of consumer DDR5 memory modules tripled, and in some cases quadrupled, with prices continuing to climb since.

9. In a competitive commodity market, prices climbing at that rate pull supply toward them. At least one of three large producers, seeing record prices, would expand output of the product whose price was rising, and the others would follow or lose customers. That did not happen.

10. TrendForce projected total DRAM-sector capital expenditure of $53.7 billion in 2025 and $61.3 billion in 2026, but concluded that this spending would have minimal impact on 2026 bit-supply growth, because the emphasis had shifted from capacity expansion toward process technology upgrades, higher-layer stacking, hybrid bonding, and high-value products such as HBM.

11. The simultaneous pivot towards HBM and away from conventional DRAM was not economically rational but for its anticompetitive effect of restricting supply and output of conventional DRAM, driving up prices and margins. On Micron's own account of the technology, producing one bit

of HBM requires forgoing three bits of conventional memory. As Micron's business chief told CNBC, "[w]hen Micron makes one bit of HBM memory, it has to forgo making three bits of more conventional memory for other devices." Measured against the 76% operating margin Micron reported for its Mobile and Client Business Unit, HBM is the better use of capacity only if its revenue premium per bit is large enough to beat the profit from three commodity bits sold into the shortage, a threshold that requires an HBM revenue premium of roughly two-and-a-half to nearly four times, depending on assumed HBM margins.

12. By the spring of 2026, that premium had compressed so far that, according to TrendForce's per-wafer analysis, HBM wafer revenue had been overtaken by that of DDR5 64GB RDIMM in the first quarter of 2026, and HBM profitability had fallen below that of DDR5 64GB RDIMM. The conventional DRAM sales Defendants declined to make were not a low-margin afterthought; they were, on Defendants' own numbers, worth hundreds of millions to billions of dollars in annual operating profit. Leaving that profit unclaimed, in unison, while commodity prices set records, is difficult to reconcile with independent profit maximization.

13. In fact, rather than compete, the three converged. In 2024, Samsung and SK Hynix exited DDR3 production while Micron continued only limited DDR3 output; in 2025, all three told customers they would wind down mainstream DDR4 production, with final mainstream shipments clustered from late 2025 into early 2026, even as many existing PCs and embedded systems still relied on DDR4. The coordinated wind-down made older parts scarce, and their prices climbed until DDR4 cost more than the newer DDR5 meant to replace it.

14. Micron's own conduct sharpened the pattern, and it did so in a way that set Micron apart from its co-Defendants. Micron sold conventional DRAM directly to consumers, under its Crucial brand—the channel best suited to carry retail memory straight into a rising market. In approximately October 2025, Samsung and SK Hynix announced strategic partnerships to supply OpenAI's Stargate initiative, targeting up to 900,000 DRAM wafer starts per month—a volume reported to be on the order of forty percent of global DRAM output if fully implemented. The public announcements identified Samsung and SK Hynix; they did not identify Micron.

15. Within about a month, in December 2025, with consumer memory prices at record highs, Micron announced that it would close Crucial—one of the best-known consumer memory brands in the world—and wind it down by the end of February 2026. A firm competing for the shortage would have used Crucial to sell into those prices. Micron instead surrendered the channel, a choice that makes sense only if Micron expected, by agreement, that Samsung and SK Hynix would not move aggressively to serve the customers it abandoned.

16. Moreover, as supply tightened, the three turned customers away rather than competing to serve them. In January 2026, industry reporting described all three manufacturers simultaneously imposing the same heightened vetting on DRAM orders—questioning buyers about who the end user would be, how much they truly needed, and whether their stated demand was real—on the stated ground that some buyers would otherwise overbook or stockpile more than they needed. A customer described it plainly, saying that "the three companies" had all grown stricter and asked the same questions. Sellers in a competitive market compete to win orders; here, all three questioned buyers in the same way at the same time.

17. The restraint proved highly profitable. SK Hynix posted record quarterly results driven by HBM and high-end server memory and reported that its memory output for the following year was effectively sold out. The memory divisions of Samsung and SK Hynix earned record profits at operating margins above seventy percent. The two Korean producers were reported to have raised server DRAM prices to major cloud customers, including Google and Microsoft, by 60% to 70% in a single quarter, while declining the multi-year contracts those customers wanted—holding to quarterly pricing because they expected prices to keep climbing.

18. The same restraint reached ordinary buyers. Common 32-gigabyte (2×16GB) DDR5 kits that had cost roughly $100 to $200 in October 2025 climbed to a starting price of about $350 by January 2026 (if in stock). Prices for higher capacity kits rose likewise—a 64-gigabyte DDR5 kit that sold for about $189 in March 2025 sold for more than $425 by November and roughly $1,080 by March 2026. The prebuilt-computer seller CyberPowerPC told its customers it was raising prices because its memory costs had risen 500% in a matter of months. Because memory is a component of nearly every device, these increases flowed into finished products: CyberPowerPC raised its system prices in the United States

and United Kingdom, and Dell raised the prices of its commercial computers, adding $130 to $230 to ordinary notebooks and desktops with 32 gigabytes of memory and far more to higher-capacity machines. Consumers paid more not only for memory but for the computers and devices that contain it.

19. Plaintiffs bring this action on behalf of themselves and classes of indirect purchasers who paid these inflated prices. Defendants' coordinated restriction of commodity DRAM supply violates Section 1 of the Sherman Act, the California Cartwright Act, and other states' antitrust laws, and Plaintiffs seek damages, including treble damages, together with injunctive relief requiring Defendants to end their coordinated supply restriction and to restore competitive conditions in the commodity DRAM market.

PARTIES

I. PLAINTIFFS

20. Marc Garciaguirre resides in Pasadena, California. During the Class Period, Plaintiff Garciaguirre indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Garciaguirre purchased the following products: a Corsair Vengeance 32GB DDR5 DRAM 6000MHz CL36 for desktop from Micro Center on July 10, 2025; a Crucial 32GB DDR5 DRAM 5200MHz kit for laptop purchased from Amazon on February 9, 2024; a 16GB DDR5 DRAM 4800MHz kit for laptop purchased from Amazon on September 6, 2023; a Crucial 32GB DDR5 DRAM 5200MHz kit for laptop purchased from Amazon on May 21, 2023; and a Crucial 32GB DDR5 DRAM kit for laptop purchased from Amazon on May 9, 2023. Plaintiff Garciaguirre paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

21. Tyree Burnett Jr. resides in Carson, California. During the Class Period, Plaintiff Burnett indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Burnett purchased a Corsair Vengeance RGB Pro 32GB (2×16GB) DDR4 3600MHz CL18 for desktop from Best Buy on January 26, 2024. Plaintiff Burnett paid more for this product than he would have paid absent Defendants' anticompetitive conduct.

22. Joseph Flores resides in Merced, California. During the Class Period, Plaintiff Flores indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Flores purchased a Corsair Vengeance 32GB DDR5 DRAM 6000MHz CL30 for desktop from Newegg on March 16, 2026. Plaintiff Flores paid more for this product than he would have paid absent Defendants' anticompetitive conduct.

23. Rodolfo "Rudy" Gurrola Jr. resides in Lancaster, California. During the Class Period, Plaintiff Gurrola indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Gurrola purchased a Corsair Vengeance 64GB (2 x 32GB) DDR5 DRAM 6400MHz for desktop from Amazon on July 7, 2025. Plaintiff Gurrola paid more for this product than he would have paid absent Defendants' anticompetitive conduct.

24. Brook Barclift resides in Salinas, California. During the Class Period, Plaintiff Barclift indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Barclift purchased a Corsair Vengeance 32GB (2 x 16GB) DDR5 DRAM 6000MHz CL30 for desktop from Amazon on September 26, 2024. Plaintiff Barclift paid more for this product than he would have paid absent Defendants' anticompetitive conduct.

25. Theo Papulis resides in El Monte, California. During the Class Period, Plaintiff Papulis indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Papulis purchased the following products: a Vengeance Memory Foam Corsair 32GB (2 x 16GB) DDR5 DRAM 6000MHz for desktop purchased from Amazon on July 12, 2023, and a Vengeance Memory Foam Corsair 32GB (2 x 16GB) DDR5 DRAM 6000MHz for desktop purchased from Amazon on May 4, 2023. Plaintiff Papulis paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

26. Jeff Ramirez Ochoa resides in San Bernardino, California. During the Class Period, Plaintiff Ochoa indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Ochoa

purchased a Crucial Pro 32GB DDR5 DRAM 6000MHz for desktop from Micro Center on April 15, 2026. Plaintiff Ochoa paid more for this product than he would have paid absent Defendants' anticompetitive conduct.

27. Paul Henning resides in Naples, Florida. During the Class Period, Plaintiff Henning indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Henning purchased the following products: a Kingston Fury Beast RGB 64GB DDR5 DRAM 6000MHz CL30 for desktop from Newegg on March 6, 2025; a Crucial 8GB DDR4 DRAM 2666MHz CL19 for laptop from Amazon on September 29, 2024; a Crucial 16GB DDR4 DRAM 2666MHz CL19 for laptop from Amazon on January 15, 2023; a Crucial 16GB DDR4 DRAM 3200MHz CL22 for laptop from Amazon on January 10, 2023; and a Corsair Vengeance RGB Pro 32GB DDR4 DRAM 2933MHz CL16 for desktop from Amazon on September 8, 2022. Plaintiff Henning paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

28. Troy's Computers LLC ("Troy's Computers") is a limited liability company registered in Florida and managed by sole member Troy Butler. Troy's Computers operates as a brick-and-mortar small business located in Summerfield, Florida. Troy's Computers offers custom computer builds for customers. Toward that end, during the Class Period Plaintiff Troy's Computers indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. Troy's Computers purchased approximately 40 DDR4 or DDR5 DRAM products during the Class Period for inclusion in custom-built computers sold to customers. Plaintiff Troy's Computers paid more for these products than it would have paid absent Defendants' anticompetitive conduct.

29. JB Tech Solutions LLC d/b/a My Florida PC ("My Florida PC") is a limited liability company registered in Florida and managed by sole member Jason Bonazoni. My Florida PC operates as a brick-and-mortar small business located in Plantation, Florida. My Florida PC offers custom computer builds for customers. Toward that end, during the Class Period Plaintiff My Florida PC indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. My Florida PC purchased dozens of DDR4 and/or

DDR5 DRAM products during the Class Period for inclusion in custom-built computers sold to customers. Plaintiff My Florida PC paid more for these products than it would have paid absent Defendants' anticompetitive conduct.

30. Evan Feliciano resides in Miami, Florida. During the Class Period, Plaintiff Feliciano indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Feliciano purchased the following products: a KingBank 32GB DDR5 DRAM 6400MHz CL32 from Amazon in May 2026; a Lexar 32GB DDR5 DRAM 6000MHz CL30 from Micro Center in October 2025; two kits of Crucial 16GB DDR4 DRAM 3200MHz CL16 from Micro Center in March or April 2025; and a TeamGroup T-Force 32GB DDR5 DRAM 6000MHz CL30 from Amazon in February 2026. Plaintiff Feliciano paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

31. Wastenotime Developments Performance Fabrications d/b/a WNTD Fab LLC ("WNTD Fab") is a limited liability company registered in Florida and managed by sole member Evan Feliciano. WNTD Fab is a small business operating in Miami, Florida. WNTD Fab offers custom computer builds for customers. Toward that end, during the Class Period Plaintiff WNTD Fab indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. WNTD Fab purchased at least the following conventional DRAM products during the Class Period for inclusion in custom-built computers sold to customers: a TeamGroup T-CREATE EXPERT 48GB DDR5 DRAM 7200MHz CL32 from Micro Center in November 2025; a Kingston 96GB DDR5 DRAM 6400MHz CL32 from Amazon in September or October 2025; a Corsair 64GB DDR5 DRAM 6000MHz CL30 from Micro Center in April or May 2025; a G.SKILL 32GB DDR5 DRAM 6000MT/s CL28 from Micro Center in April 2025; a Kingston 32GB DDR5 DRAM 6000Mhz CL36 from Amazon in April 2025; and a KLEVV DDR5 DRAM 32GB that was either 6000MHz CL30 or 6400MHz CL32 from Amazon in August 2025. Plaintiff WNTD Fab paid more for these products than it would have paid absent Defendants' anticompetitive conduct.

32. Brian Graber resides in Big Lake, Minnesota. During the Class Period, Plaintiff Graber indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Graber purchased the

following products: a Team Group 16GB (2 x 8GB) DDR5 DRAM 6000MHz from Newegg on January 23, 2026; a Team Group 16GB (2 x 8GB) DDR5 DRAM 6000MHz from Newegg on November 3, 2025; a G.SKILL Ripjaws V Series 32GB (2 x 16GB) DDR4 DRAM 3200MHz for desktop from Newegg on December 7, 2025; a Team T-Force Delta RGB 48GB (2 x 24GB) DDR5 DRAM 7200MHz for desktop from Newegg on September 15, 2025; and a Corsair Vengeance RGB 32GB DDR5 DRAM 6400MHz for desktop from Newegg on November 26, 2025. Plaintiff Graber paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

33. Joseph Danson resides in Jamestown, New York. During the Class Period, Plaintiff Danson indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Danson purchased a Corsair Vengeance 96GB (2 x 48GB) DDR5 DRAM 6000MHz for server from Amazon on June 17, 2025. Plaintiff Danson paid more for this product than he would have paid absent Defendants' anticompetitive conduct.

34. John Prineas resides in Newfield, New York. During the Class Period, Plaintiff Prineas indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Prineas purchased a 32GB (2 x 16GB) DDR5 DRAM 6200MHz CL36 for desktop from Newegg on March 23, 2023 and a 32GB (2 x 16GB) DDR5 DRAM 6200 MHz for desktop from Newegg on February 11, 2023. Plaintiff Prineas paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

35. Thomas Yu resides in Brooklyn, New York. During the Class Period, Plaintiff Yu indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Yu purchased a G.SKILL 15GB (2 x 8GB) DDR4 DRAM 3200MHz CL16 from Micro Center on October 11, 2024; a Corsair Vengeance 32GB (2 x 16GB) DDR5 DRAM 5600MHz CL36 from Micro Center on March 3, 2024; and a Corsair 32GB (2 x 16GB) RGB DDR4 DRAM 3200MHz CL16 from Micro Center on April 3, 2022. Plaintiff Yu paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

36. Donald Barber resides in Sheboygan, Wisconsin. During the Class Period, Plaintiff Barber indirectly purchased conventional DRAM products manufactured by one or more Defendants by purchasing conventional DRAM at artificially inflated prices. For example, Mr. Barber purchased two Corsair 32GB DDR5 DRAM 6000MHz for desktop from Best Buy in or around April 2026. Plaintiff Barber paid more for these products than he would have paid absent Defendants' anticompetitive conduct.

II. DEFENDANTS

37. Defendant Samsung Electronics Co., Ltd. ("Samsung Electronics") is a South Korean corporation with its principal place of business in Suwon, Gyeonggi Province, South Korea. Samsung Electronics is one of the world's two largest DRAM manufacturers by revenue, holding approximately 32.6% of the global DRAM market as of Q3 2025. Samsung manufactures and sells DRAM products—including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, HBM, and other memory products—throughout the United States, directly and through its subsidiaries.

38. Defendant Samsung Semiconductor, Inc. ("Samsung Semiconductor") is a California corporation headquartered at 3655 North First Street, San Jose, California 95134. Samsung Semiconductor is a wholly-owned subsidiary of Samsung Electronics Co., Ltd. and serves as Samsung's United States semiconductor sales, marketing, and distribution arm. Samsung Electronics and Samsung Semiconductor are collectively referred to in this Complaint as "Samsung."

39. Defendant SK Hynix Inc. ("SK Hynix") is a South Korean corporation with its principal place of business in Icheon, Gyeonggi Province, South Korea. SK Hynix is the world's largest DRAM manufacturer by revenue as of Q3 2025, holding approximately 33.2% of the global market. SK Hynix manufactures and sells DRAM products throughout the United States, directly and through its subsidiaries.

40. Defendant SK Hynix America Inc. ("SK Hynix America") is a California corporation headquartered at 3101 North First Street, San Jose, California 95134. SK Hynix America is a wholly-owned subsidiary of SK Hynix Inc. and serves as SK Hynix's United States sales, marketing, and technical support subsidiary.

41. Defendant Micron Technology, Inc. ("Micron") is a Delaware corporation headquartered at 8000 South Federal Way, Boise, Idaho 83716. Micron is the world's third-largest DRAM

manufacturer, holding approximately 25.7% of the global DRAM market by revenue as of Q3 2025. Micron manufactures and sells DRAM products throughout the United States directly and through its subsidiaries and distribution channels, including its Crucial-branded consumer memory business.

42. Various persons and entities not named as Defendants herein participated as co-conspirators in the violations alleged in this Complaint and performed acts and made statements in furtherance thereof. Each Defendant acted as the principal, agent, or joint venturer of, or for, the other Defendants with respect to the acts, violations, and common course of conduct alleged herein.

JURISDICTION AND VENUE

43. This Court has subject matter jurisdiction over Plaintiffs' federal claims pursuant to 28 U.S.C. §§ 1331 and 1337, and Sections 4 and 16 of the Clayton Act, 15 U.S.C. §§ 15 and 26.

44. This Court has supplemental jurisdiction over Plaintiffs' state-law claims pursuant to 28 U.S.C. § 1367.

45. Venue is proper in this District pursuant to 15 U.S.C. §§ 15(a) and 22, and 28 U.S.C. § 1391(b), (c), and (d). Samsung Semiconductor, Inc. is headquartered at 3655 North First Street, San Jose, California. SK Hynix America Inc. is headquartered at 3101 North First Street, San Jose, California. Both are California corporations. A substantial part of the events giving rise to Plaintiffs' claims occurred in this District, and a substantial portion of the affected interstate trade and commerce was carried out in this District.

46. This Court has personal jurisdiction over each Defendant. Each Defendant, directly or through its agents, subsidiaries, or affiliates: (a) transacted business in this District; (b) sold conventional DRAM products in this District; (c) had substantial contacts with this District; and (d) is subject to personal jurisdiction under 15 U.S.C. § 22 and Cal. Civ. Proc. Code § 410.10.

47. This Court has personal jurisdiction over Defendants Samsung Electronics Co., Ltd. and Samsung Semiconductor, Inc. Samsung Semiconductor is incorporated in California (File No. C1145978) and headquartered at 3655 North First Street, San Jose, within this District. Samsung Semiconductor serves as Samsung's United States semiconductor sales, marketing, distribution, and technical-support arm. Samsung Electronics is subject to personal jurisdiction through its wholly-owned subsidiary and its direct sales into this District.

48. This Court has personal jurisdiction over Defendants SK Hynix Inc. and SK Hynix America Inc. SK Hynix America is incorporated in California (File No. C1175976) and maintains its principal office at 3101 North First Street, San Jose, within this District. SK Hynix America serves as SK Hynix Inc.'s U.S. sales, marketing, and technical support subsidiary. SK Hynix Inc. is subject to personal jurisdiction through its wholly-owned subsidiary and its direct sales into this District.

49. This Court has personal jurisdiction over Defendant Micron Technology, Inc. Micron maintains an office in San Jose, California, within this District. Micron sells conventional DRAM products directly and through distributors to major customers headquartered in the Northern District of California, including Apple, Alphabet/Google, Meta Platforms, Cisco Systems, and Hewlett Packard Enterprise. Micron is subject to personal jurisdiction under the Clayton Act, 15 U.S.C. § 22, and Cal. Civ. Proc. Code § 410.10.

DIVISIONAL ASSIGNMENT

50. This is an antitrust class action for which "venue is proper in any courthouse in this District" under General Order No. 44 § D.3 and Civil Local Rule 3-2(c).

FACTS

I. THE DRAM INDUSTRY

51. The DRAM industry has structural characteristics that make coordinated supply restriction both feasible and durable. The following sections describe the product, how it is manufactured and sold, its role in consumer devices, and the oligopolistic market structure in which Defendants operate.

A. What Is DRAM?

52. DRAM—Dynamic Random Access Memory—is a semiconductor chip that provides temporary, high-speed data storage for electronic processors. Unlike NAND flash or hard drives, DRAM retains data only while power is supplied. It is the "working memory" of every computing device: the active workspace where processors read and write data during operation.

53. At the physical level, each bit of DRAM is stored in a memory cell consisting of a tiny capacitor paired with a single transistor. The capacitor holds an electrical charge to represent a binary 1, or no charge to represent a 0.

54. Because capacitors leak charge over time, the data would be lost within milliseconds without intervention. DRAM circuits must therefore "refresh" every cell thousands of times per second—rewriting the stored charge before it dissipates. This constant refresh cycle is what makes the memory "dynamic." It distinguishes DRAM from static RAM (SRAM), which retains data without refreshing but requires four to six transistors per bit instead of one, making SRAM far more expensive and less dense. SRAM is used in small, fast processor caches; DRAM is used for the large main memory that every computing device requires.

55. In the memory hierarchy of a modern computer, DRAM sits between the processor and long-term storage. It is roughly 100,000 times faster than a solid-state drive and roughly 100 times slower than on-chip SRAM cache.

56. The amount of DRAM in a system directly determines how many applications can run simultaneously, how large a dataset can be processed in memory, and how responsive the system feels to its user. Adding more DRAM is one of the most cost-effective ways to improve the performance of any computing device—which is precisely why inflated conventional DRAM prices cause such broad consumer harm.

57. DRAM is present in virtually every electronic device manufactured today. A typical smartphone contains 4-12 gigabytes of DRAM. A typical personal computer contains 8-32 gigabytes. A modern data center server may contain 512 gigabytes to several terabytes. Without DRAM, none of these devices can operate. There is no substitute.

58. DRAM chips are manufactured to technical specifications set by the Joint Electron Device Engineering Council (JEDEC), a global standards body. Because chips conforming to a given JEDEC standard are functionally interchangeable across manufacturers—one maker's DDR5 for another's DDR5, one maker's DDR4 for another's DDR4—DRAM is a commodity. An OEM designing a laptop can source DDR5 from Samsung, SK Hynix, or Micron and expect identical performance.

59. The principal types of DRAM at issue include: (a) DDR4, the previous mainstream generation, still deployed across a large installed base of systems; (b) DDR5, the current mainstream generation; (c) LPDDR5X, used in smartphones and ultraportable laptops; (d) GDDR6 and GDDR7, used

in graphics cards; and (e) HBM (High Bandwidth Memory), a specialized stacked-DRAM product used in AI accelerators like Nvidia's H100 and Blackwell GPUs.

60. Commodity DRAM serves the mass market—every consumer, every business, every device. HBM serves a narrow ultra-high-end segment of AI customers. HBM commands prices several times higher per gigabyte and requires more than twice the silicon wafer area to manufacture. The conspiracy alleged herein involves Defendants' coordinated decision to starve the commodity DRAM market of supply while redirecting resources to HBM.

61. The global DRAM market generated revenues exceeding $90 billion in 2024. DRAM revenue is projected to reach $136.5 billion in 2025, a 51 percent year-over-year increase, driven by rising average prices and the growth of high-value products such as high-bandwidth memory.

B. How DRAM Is Manufactured and Sold

62. DRAM chips are manufactured in semiconductor fabrication facilities ("fabs")—specialized factories that process silicon wafers through hundreds of sequential steps. A single DRAM chip contains billions of transistors and capacitors.

63. A modern DRAM fab costs $15-20 billion to build and takes three to five years from groundbreaking to volume production. The equipment is highly specialized: extreme ultraviolet (EUV) lithography systems, manufactured almost exclusively by ASML of the Netherlands, cost approximately $200 million each, and a single fab may require dozens. These facilities cannot be readily converted to produce other types of semiconductors.

64. DRAM production capacity is measured in "wafer starts per month"—the number of 300mm silicon wafers entering the fab each month. Total global DRAM capacity in 2025 was approximately 2.25 million wafer starts per month, virtually all controlled by Defendants.

65. Wafer capacity is a zero-sum resource. Every wafer allocated to HBM is a wafer that cannot produce commodity DDR5. Because HBM requires more than twice the wafer area per gigabyte, even a modest reallocation from commodity DRAM to HBM has a disproportionate impact on commodity supply.

66. Conventional DRAM is sold through several channels. Defendants sell directly to large OEMs (Dell, HP, Lenovo, Apple) and data center operators (Amazon, Google, Microsoft, Meta) through

negotiated quarterly contracts. They also sell to memory module assemblers (Kingston, Corsair, G.Skill) and distributors, who in turn sell to smaller OEMs, system builders, retailers, and consumers. Contract prices are negotiated quarterly and are publicly tracked by TrendForce/DRAMeXchange, providing each Defendant with near-real-time visibility into its competitors' pricing.

67. Consumers and small businesses—the indirect purchasers on whose behalf this action is brought—purchase conventional DRAM in two forms: as standalone memory modules (e.g., a DDR5 upgrade kit from Corsair) and as a component embedded in electronic devices (*e.g.*, a laptop, smartphone, or gaming console). In both cases, the supracompetitive DRAM price is passed through the distribution chain and borne by the end purchaser.

C. DRAM in Consumer Devices

68. Every smartphone sold worldwide contains DRAM. Apple's iPhone 16 Pro contains 8 gigabytes of LPDDR5X DRAM. Samsung's Galaxy S25 Ultra contains 12 gigabytes. Over 1.2 billion smartphones shipped worldwide in 2024, and IDC projects approximately 1.25 billion units in 2025. Every one of these devices contains DRAM manufactured by Samsung, SK Hynix, or Micron. For United States purchasers that need current-generation smartphone DRAM at scale, the Chinese producers discussed below are not a meaningful substitute.

69. Every personal computer and laptop contains DRAM. A typical 2024 laptop ships with 16 to 32 gigabytes of DDR5. Global PC shipments exceeded 240 million units in 2024. Every gaming console contains DRAM: the PlayStation 5 uses 16 gigabytes of GDDR6, and the Xbox Series X uses 16 gigabytes of GDDR6. Sony has shipped over 75 million PlayStation 5 consoles since launch.

70. Data centers and cloud computing facilities are among the largest DRAM consumers. A single server configured for AI training workloads may contain one to two terabytes of DRAM. Hyperscale operators—Amazon Web Services, Google Cloud, Microsoft Azure, and Meta—collectively purchase billions of dollars of DRAM annually. DRAM is also embedded in smart televisions, networking equipment, and automobiles, where modern vehicles require multiple gigabytes of DRAM for infotainment systems, advanced driver-assistance systems, and autonomous driving functions.

71. DRAM is embedded in virtually every electronic device manufactured today. When Defendants coordinate to restrict DRAM supply and inflate prices, the cost increase is passed through to

consumers across every one of these product categories—smartphones, PCs, gaming consoles, servers, automobiles, and consumer electronics. No device category escapes the impact.

D. The DRAM Oligopoly

72. Three companies control over 91% of global DRAM revenue. As of Q3 2025, SK Hynix held 33.2%, Samsung held 32.6%, and Micron held 25.7%. The Herfindahl-Hirschman Index ("HHI") for the DRAM market is approximately 2,868—well above the 1,800 threshold that the DOJ and FTC identify as presumptively "highly concentrated." U.S. Dep't of Justice & FTC, 2023 Merger Guidelines § 2.1 (Dec. 18, 2023).

73. This was not always so. In the 1990s, approximately twenty firms manufactured DRAM. Over the following two decades, a relentless cycle of capital-intensive competition drove consolidation: Qimonda (Germany) went bankrupt in 2009; Elpida Memory (Japan) went bankrupt in 2012 and was acquired by Micron; ProMOS Technologies and Powerchip Semiconductor (Taiwan) exited the market; NEC, Hitachi, and Toshiba withdrew. The survivors—Samsung, SK Hynix, and Micron—absorbed the fallen and emerged as an unassailable triopoly.

74. The only remaining DRAM producers outside the Big Three are specialty manufacturers like Nanya, Winbond, and PSMC, which collectively have less than 3% of the market, and Chinese firms Changxin Memory Technologies ("CXMT") and Fujian Jinhua Integrated Circuit Company. These Chinese firms collectively hold 5% or less of global capacity and are limited to older-generation DRAM. United States export controls—promulgated by the Bureau of Industry and Security in October 2022 and updated in October 2023—restrict their access to advanced chipmaking equipment, preventing them from meaningfully manufacturing competing DDR5, LPDDR5X, GDDR7, or HBM. They are not a competitive constraint on Defendants.

75. Barriers to entry are insurmountable. A new entrant would need $15-20 billion for a single fab, proprietary process technology, thousands of specialized engineers, 12-18 months of customer qualification, and years of yield optimization. The total investment to reach competitive scale is estimated at $30-50 billion over five to seven years. No significant new entrant has achieved meaningful share in over a decade.

76. A smartphone manufacturer cannot build a phone without DRAM. A server manufacturer cannot build a server without DRAM. When prices rise—even by approximately 697%—purchasers do not switch to other products. They pay, or they defer purchases.

77. The conventional DRAM market exhibits every structural feature that facilitates coordination: extreme concentration; a homogeneous, commodity product standardized by JEDEC; transparent pricing tracked by TrendForce on a quarterly basis; repeated interactions with the same customers on the same quarterly cycle; symmetric cost structures across all three firms; and a proven history of successful cartel activity.

II. THE FABRICATION BARRIER TO ENTRY ("FBE")

78. The conventional DRAM market is protected by what this Complaint terms the "Fabrication Barrier to Entry" ("FBE")—a self-reinforcing combination of capital requirements, equipment scarcity, proprietary process technology, regulatory restrictions, and customer qualification cycles that makes meaningful new entry into conventional DRAM manufacturing virtually impossible.

A. Capital Requirements

79. A single modern DRAM fabrication facility costs $15-20 billion to construct and equip. A competitive DRAM operation requires multiple fabs, process development facilities, packaging and testing lines, and global logistics infrastructure. The total investment to reach competitive scale is estimated at $30-50 billion over five to seven years.

80. For context, $30-50 billion exceeds the GDP of approximately half the world's nations. No venture capital fund, private equity firm, or sovereign wealth fund has attempted this investment in over a decade.

81. For comparison, the U.S. CHIPS and Science Act of 2022 authorized $52.7 billion in semiconductor subsidies—roughly the cost of building a single competitive DRAM operation. Micron announced plans for its CHIPS Act-funded fab in Clay, New York in 2022 and broke ground, after a long planning and permitting process, in January 2026. That fab is not expected to begin production until late 2030. The timeline from government commitment to first wafer illustrates the multi-year lag inherent in DRAM capacity expansion.

82. TrendForce's November 2025 analysis of memory-industry capital expenditure reflects the scale of investment required merely to maintain leading-edge operations. TrendForce projected that Samsung would invest $20 billion in 2026 (up 11% year-over-year) to advance 1C-process HBM production and slightly expand P4L wafer capacity; that SK Hynix spending would reach $20.5 billion (up 17%), driven by HBM4 capacity expansion at its M15x fab; and that Micron capital expenditure would reach $13.5 billion (up 23%), primarily for 1-gamma node adoption and TSV equipment. These are TrendForce projections describing where investment was directed, not issuer-reported segment capital expenditure.

83. TrendForce projected that total DRAM-sector capital expenditure would reach $53.7 billion in 2025 and rise to $61.3 billion in 2026, approximately 14% year-over-year growth. TrendForce concluded that this investment "is unlikely to significantly affect bit output" because "the emphasis is shifting from capacity expansion to advancements such as process technology upgrades, higher-layer stacking, hybrid bonding, and high-value products such as HBM." In other words, Defendants are collectively spending more than $60 billion per year without directing any material amount to commodity DRAM supply. On TrendForce's analysis, the additional capital expenditure would have a minimal impact on bit supply growth in 2026, not a near-term ordinary DRAM supply response.

84. TrendForce further reported: "Cleanroom capacity in the DRAM industry remains limited. Only Samsung and SK Hynix are able to slightly expand their production lines, whereas Micron is waiting for its new ID1 fab in the United States to become operational. This is not expected to happen before 2027. Consequently, additional CapEx will have a minimal impact on bit supply growth in 2026."

B. Equipment Scarcity: The ASML Bottleneck

85. Modern DRAM manufacturing at the leading edge requires extreme ultraviolet ("EUV") lithography systems, manufactured almost exclusively by ASML Holding N.V. of the Netherlands. Each EUV system costs more than $200 million, and a single advanced DRAM fab may require dozens of them. ASML produces around 50 EUV systems per year, and its order backlog extends years into the future.

86. ASML's limited production capacity is already fully allocated to existing customers—principally Samsung, SK Hynix, Micron, TSMC, and Intel. A new DRAM entrant would face multi-year

wait times for the most critical manufacturing equipment, during which it would earn zero revenue on a multi-billion-dollar investment.

87. ASML's current-generation EUV system, the TWINSCAN NXE:3600D, costs up to $200 million per unit. ASML's next-generation High-NA EUV system costs approximately $370 million per unit. As of 2022, ASML had shipped approximately 140 EUV systems worldwide. ASML's annual production capacity is limited, and all output is allocated to existing customers years in advance. A new entrant would join a multi-year queue behind Samsung, SK Hynix, Micron, TSMC, and Intel—each of which has contractual commitments with ASML for future EUV deliveries.

C. Proprietary Process Technology

88. DRAM manufacturing requires proprietary process technology that has been developed over decades at a cost of tens of billions of dollars in cumulative R&D. Each of the three Defendants maintains a unique process technology "node"—currently in the 1-alpha (1α) to 1-gamma (1γ) range—that defines the density, power consumption, and performance of its DRAM chips. These process nodes are protected by thousands of patents and trade secrets.

89. A new entrant would need to independently develop comparable process technology from scratch or license it from an existing manufacturer. No existing manufacturer has any incentive to license its core process technology to a potential competitor. The process technology gap between the Big Three and any potential entrant is measured in years or decades.

90. Current leading-edge DRAM is manufactured at proprietary process nodes designated 1-alpha (~15nm class), 1-beta (~13nm class), and 1-gamma (~10nm class). Each manufacturer maintains its own version of these nodes—Samsung's "1b" and "1c," SK Hynix's "1b," and Micron's "1-beta"—developed through decades of accumulated know-how in high-aspect-ratio capacitor etching, cell architecture design, and yield optimization. These process technologies are closely guarded trade secrets that cannot be purchased or licensed.

91. The difficulty of developing competitive DRAM process technology is illustrated by the yield challenges facing even incumbent manufacturers. In February 2026, TrendForce reported that Samsung's HBM4-bound 1c DRAM yields were still estimated below 60%, and that Samsung was pushing to lift them toward 80% to serve key AI customers including Nvidia. SK Hynix, meanwhile, was

reportedly cutting HBM4 shipments by 20-30% from its original target. A new entrant starting from scratch would need an estimated five to ten years to develop competitive process technology, even with unlimited capital.

D. U.S. Export Controls

92. In October 2022—the same month the coordinated production cuts began—the U.S. Bureau of Industry and Security ("BIS") promulgated sweeping semiconductor export controls targeting China. These controls, updated in October 2023, restrict Chinese firms' access to advanced chipmaking equipment, including EUV lithography systems, certain advanced deposition and etching tools, and electronic design automation ("EDA") software.

93. The export controls effectively cap Chinese DRAM manufacturers—principally CXMT and Fujian Jinhua—at older-generation DRAM technology. These firms cannot meaningfully manufacture competing DDR5, LPDDR5X, GDDR7, or HBM, as they cannot acquire the equipment necessary to do so. They are therefore unable to serve as a competitive constraint on Defendants in the product segments experiencing the most severe supply restriction and price inflation.

94. In early 2026, the MATCH Act was introduced in Congress, with significant support from Micron. The MATCH Act would expand these same export controls to include not only EUV lithography systems, but also DUV lithography systems. DUV is an older technology that China-based manufacturers, blocked from using EUV, had turned to in order to manufacture older-generation DRAM. The MATCH Act would further solidify the barrier to any competition to the oligopoly.

95. The practical effect is to cement the FBE. The only potential competitors are barred from acquiring the equipment needed to manufacture current-generation DRAM.

E. Customer Qualification Cycles

96. Even if a new entrant could build a fab, acquire equipment, and develop process technology, it would face an additional 12-18 months of customer qualification before any major OEM or data center operator would purchase its DRAM in volume. Customer qualification involves extensive testing of the new manufacturer's chips for compatibility, reliability, and performance across thousands of system configurations. During this qualification period, the entrant would be producing DRAM with no guaranteed buyers.

97. The customer qualification barrier is particularly severe in the server and data center market, where memory failures can cause catastrophic data loss. Enterprise customers—Amazon, Google, Microsoft, Meta—maintain approved vendor lists and require months or years of validation before adding a new DRAM supplier. A new entrant cannot shortcut this process.

98. Server OEMs such as Dell, HP, and Lenovo can require a year or more of qualification testing before deploying memory from a new supplier. During qualification, the manufacturer must demonstrate consistent yield, reliability, and performance across multiple production lots. No server OEM will risk deploying unqualified memory in mission-critical systems—a single uncorrectable bit error can crash an enterprise server, corrupt a database, or halt a cloud computing workload.

99. The qualification requirement creates a structural barrier: a new entrant cannot generate revenue without completing qualification, but cannot justify the cost of qualification without committed customers. Incumbent manufacturers, by contrast, have maintained continuous qualification status with every major OEM for decades. Dell COO Jeff Clarke stated in November 2025 that he had "never seen memory-chip costs rise this fast," yet Dell continued to source exclusively from Defendants—illustrating the absence of any qualified alternative supplier.

F. Withholding of Conventional DRAM Production Capacity

100. Defendants are likewise actively contributing to the FBE. At the same time Defendants were implementing parallel production cuts and shifting investment and production to HBM, they stopped reselling used DRAM fabrication equipment. In prior years, smaller market participants had relied on buying Defendants' used DRAM machinery in order to build their own production capabilities. But with this equipment now sitting in Defendants' warehouses, Defendants hamper the ability for non-Defendant producers to react to Defendants' supply cuts.

101. These are not obsolete tools, but functional production equipment capable of manufacturing DDR4 and older DRAM products for which demand remains strong. The decision to stop reselling the equipment eliminates smaller companies' ability to restore sufficient and competitive commodity DRAM supply.

G. Failed Entry and Industry Consolidation

102. In the 1990s, more than a dozen firms manufactured DRAM worldwide, including Samsung, Hyundai (now SK Hynix), Micron, NEC, Hitachi, Toshiba, Mitsubishi, Infineon (formerly Siemens), Elpida, Qimonda, ProMOS Technologies, Nanya Technology, Powerchip Semiconductor, Winbond Electronics, and Inotera Memories. Today, three firms control over 91% of global DRAM revenue.

103. Qimonda AG was spun off from Infineon Technologies on May 1, 2006 as the world's second-largest DRAM manufacturer, according to Gartner Dataquest. At its peak in 2007, Qimonda employed approximately 13,500 people worldwide, operated four 300mm fabrication facilities, and maintained six major R&D centers across three continents. Infineon—itself a spinoff of Siemens AG—controlled a 77.5% stake. Qimonda filed for bankruptcy in January 2009 and was dissolved by 2011.

104. Elpida Memory was formed in 1999 from the merger of NEC's and Hitachi's DRAM businesses. In 2003, Elpida absorbed Mitsubishi's DRAM business. Despite backing from the Japanese government, Elpida filed for bankruptcy in February 2012. Micron acquired Elpida in 2013 for approximately $2.5 billion.

105. Fujian Jinhua Integrated Circuit Company was founded in February 2016 as a Chinese state-owned enterprise with $5.6 billion in investment from the Chinese national government and Fujian provincial government. Its stated goal was to fill the gap in domestic DRAM production. In October 2018, the U.S. Department of Commerce placed Fujian Jinhua on the Entity List, cutting off its access to American technology. Fujian Jinhua has never achieved meaningful DRAM production.

106. ChangXin Memory Technologies ("CXMT") is the only other Chinese DRAM producer of note. CXMT is limited to older DRAM technology and cannot acquire EUV lithography equipment due to U.S. export controls. It holds less than 5% of global DRAM capacity and is not a competitive constraint at the leading edge.

107. The graveyard of failed DRAM manufacturers—including firms backed by national governments and armed with billions in capital—demonstrates that the FBE is not theoretical. It has defeated every challenger for two decades.

108. The consolidation of the DRAM industry is among the most extreme in any major technology market. In the 1990s, more than a dozen firms manufactured DRAM worldwide. Today, three firms control approximately 92% of the DRAM market. Every other entrant—including companies backed by national governments and armed with billions in capital—has either been acquired, gone bankrupt, or been reduced to irrelevance.

109. The U.S. CHIPS and Science Act of 2022 appropriated $52.7 billion in semiconductor subsidies—the largest industrial policy investment in U.S. semiconductor history. Yet even this unprecedented government intervention is being used to expand existing manufacturers' capacity, not to create new DRAM entrants. Micron received CHIPS Act funding for its new Idaho fab, which will not be operational before 2027 and will serve Micron's existing product lines. No portion of the CHIPS Act has been directed toward enabling a new competitor in DRAM manufacturing.

H. The FBE as a Coordination Facilitator

110. The FBE ensures that no new entrant can appear to undercut Defendants' pricing. In markets with low barriers to entry, coordinated supply restriction is self-defeating: elevated prices attract new entrants who expand supply and drive prices back down. The FBE eliminates that discipline. Once all three Defendants restrict supply, there is no market mechanism to restore competitive pricing.

111. The relationship between the FBE and Defendants' conduct is self-reinforcing. Coordinated supply restriction generates supracompetitive profits, which fund R&D at levels no entrant can match, which widens the process technology gap, which raises the barrier to entry further.

112. Defendants' mothballing of manufacturing equipment independently strengthens the FBE by removing used tools from the secondary market that a potential entrant might otherwise acquire at reduced cost.

113. Defendants' coordinated reallocation of existing DRAM capacity to HBM reduces the available commodity DRAM supply without any entrant being able to fill the gap.

114. The anticompetitive feedback loop between the FBE and Defendants' coordinated conduct is addressed further in Section V, *infra*.

III. THE RELEVANT MARKET

115. Plaintiffs' claims arise in a well-defined antitrust market. The following sections identify the relevant product market, the participants and concentration levels within that market, and the relevant geographic market affected by Defendants' conduct.

A. The Relevant Product Market

116. The relevant product market is conventional DRAM—encompassing DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM conforming to JEDEC specifications, but excluding HBM (High Bandwidth Memory). The market is defined by the buyers who depend on commodity DRAM: the PC, server, smartphone, automotive, and memory-module purchasers who must have JEDEC-standard DRAM to build their products and who have no substitute when its price rises. This type of DRAM is referred to herein as conventional or commodity DRAM market.

117. The conventional DRAM market is a submarket within the overall DRAM market.

118. HBM falls outside the conventional DRAM market. It is sold to a narrow set of AI-accelerator customers, manufactured through different stacking and advanced-packaging processes, and priced several times higher per gigabyte; it cannot be installed in a PC, server, phone, or consumer memory module, and its availability does nothing to discipline the price of commodity DRAM. HBM is relevant here only because Defendants' diversion of wafer capacity to it reduces the supply of commodity DRAM—not because it competes in the same market. The boundaries of the conventional DRAM market are confirmed by the practical indicia set forth below.

119. ***Industry and Public Recognition.*** Overall DRAM is universally recognized as a distinct product market by regulators, courts, industry analysts, trade associations, market participants, and Defendants themselves.

120. Antitrust regulators on three continents have defined DRAM as a distinct product market. The United States Department of Justice prosecuted the 1998-2002 DRAM cartel as a conspiracy to fix the prices of "dynamic random access memory (DRAM)," identifying DRAM as a discrete product with its own market.

121. The DOJ's one-count felony charge against Samsung alleged that Samsung "conspired with other DRAM manufacturers to fix the prices of DRAM sold to certain computer and server

manufacturers." The charging document did not define the product market to include NAND flash, SRAM, hard drives, or any other memory or storage product.

122. The DOJ described DRAM as a product with independent market significance:

> DRAM is the most commonly used semiconductor memory product, providing high-speed storage and retrieval of electronic information for a wide variety of computer, telecommunication, and consumer electronic products.

123. The European Commission likewise identified "DRAM" as the relevant product market in its 2010 cartel decision (Case COMP/38.511), fining nine manufacturers €331 million for participating in a "single and continuous infringement" in the DRAM market. The Commission's decision treated DRAM as a distinct product category, separate from other semiconductor memory products including NAND flash.

124. China's State Administration for Market Regulation ("SAMR") opened an antitrust investigation in May 2018 targeting Samsung, SK Hynix, and Micron specifically for DRAM pricing. The investigation followed sharply rising DRAM prices and sustained complaints from Chinese terminal-device manufacturers about the cost of DRAM specifically, not memory products generally or semiconductors as a whole. SAMR's decision to investigate DRAM pricing as a distinct competitive concern confirms regulatory recognition of the product market.

125. Industry analysts and research firms universally track DRAM as a separate product market. TrendForce (formerly DRAMeXchange)—the world's leading DRAM industry research firm—publishes dedicated commodity DRAM contract and spot price indices on a weekly and quarterly basis, separate from HBM, NAND flash, LED, LCD, and other semiconductors.

126. Statista publishes quarterly DRAM manufacturer market share data as a distinct product category. IHS Markit and IDC likewise track and report DRAM separately. The very existence of dedicated DRAM pricing indices, revenue trackers, and market share reports—separate from all other semiconductor products—confirms that market participants and industry analysts treat DRAM as a distinct product market.

127. JEDEC Solid State Technology Association—the global standards body for semiconductor engineering—publishes DRAM-specific technical standards (e.g., JESD79-5B for DDR5, JESD209-5B for LPDDR5X) that are distinct from its NAND flash standards (e.g., JESD230 for UFS). The existence of separate standards bodies and specifications for DRAM and NAND confirms their distinct nature.

128. Defendants themselves recognize DRAM as a distinct product market in their public filings and investor communications. Micron Technology's Annual Report on Form 10-K filed with the SEC reports DRAM revenue separately from NAND revenue. In its most recent 10-K, Micron reported that DRAM products represented approximately 77% of its total revenue, provided DRAM-specific data, and discussed the "DRAM market."

129. Samsung Electronics' quarterly reports discuss results and plans for its DRAM and NAND segments separately.

130. SK Hynix's investor presentations and quarterly earnings calls likewise report DRAM revenue, DRAM pricing trends, and DRAM market conditions separately from NAND and other products.

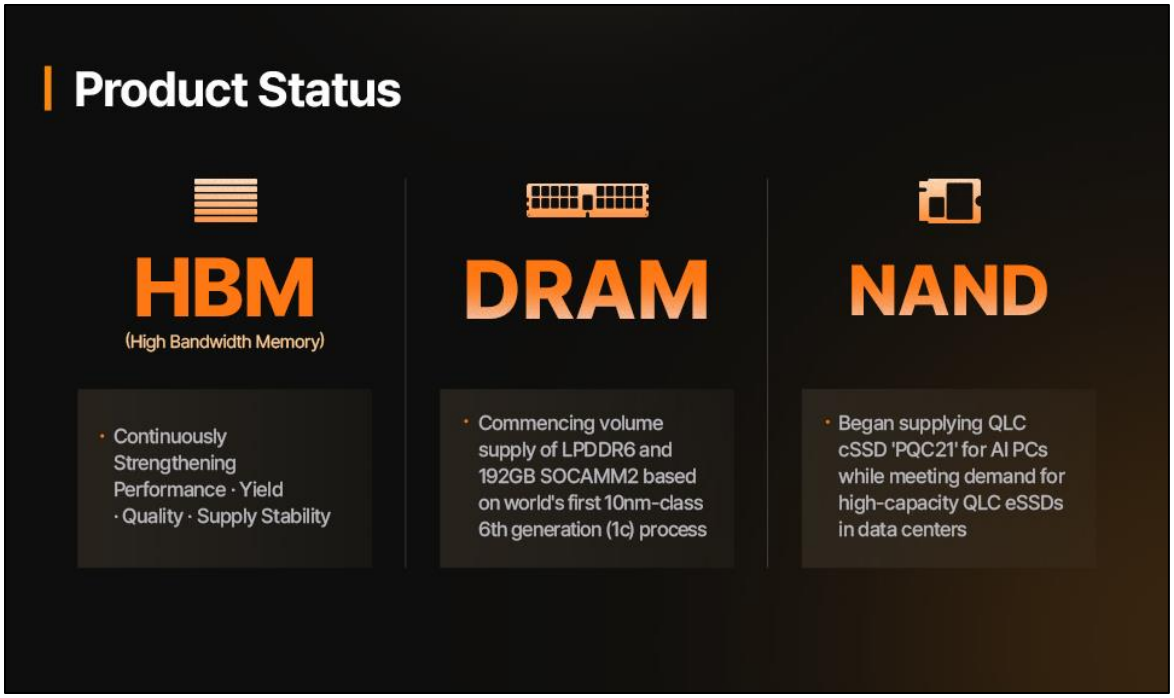
131. Trade associations reinforce this recognition. For example, the Semiconductor Industry Association ("SIA") reports DRAM as a distinct semiconductor category.

132. Within overall DRAM, the distinction between conventional DRAM and HBM is likewise recognized by the industry and the public.

133. Defendants themselves separate HBM out from conventional DRAM. For example, SK Hynix treats HBM and DRAM as distinct segments.

Products
/Tech
Strategy
SK hynix
HBM
Concentrating efforts on further strengthening comprehensive execution capabilities encompassing performance, yield, quality & supply stability
For HBM4, working closely with customers from early stages of development for products that meet customers' required performance levels and plan to ramp up volume in line with agreed schedule
DRAM
Completed development of industry's 1st 1cnm LPDDR6, with plans for full-scale market supply in second half starting with adoption in a major smartphone customer's next-generation flagship model
Mass production of 1cnm 192GB SOCAMM2 optimized for NVIDIA's Vera Rubin platform
NAND
cSSD: started supply of PQC21 adopting CTF-based 321L QLC
eSSD: respond flexibly to broad-based AI demand through a balanced product lineup across entire enterprise market, spanning high-performance TLC and high-capacity QLC
We Do Technology

134. In public press releases, SK Hynix likewise distinguishes between HBM and DRAM, discussing future plans for "HBM" and "DRAM" separately, and listing "Product Status" for the different markets.


Product Status
HBM
(High Bandwidth Memory)
· Continuously Strengthening Performance · Yield · Quality · Supply Stability
DRAM
· Commencing volume supply of LPDDR6 and 192GB SOCAMM2 based on world's first 10nm-class 6th generation (1c) process
NAND
· Began supplying QLC cSSD 'PQC21' for AI PCs while meeting demand for high-capacity QLC eSSDs in data centers

135. During its Q1 2026 earnings call, SK Hynix's CFO reported on distinct demand and business guidance for "HBM" and "conventional DRAM."

136. In its Q1 2026 report, Micron discussed "HBM demand" and "HBM supply" separately from generic DRAM. In its Q3 and Q4 2025 quarterly reports, Micron discussed Micron and "industry bit demand growth for non-HBM DRAM." In Q2 2025, Micron discussed "the ramp of HBM . . . contributing to tightness at the leading edge and constraining non-HBM DRAM supply," as well as "constrain[ed] capacity for non-HBM products." Micron also tracks HBM specific revenue and margins separately from other DRAM. Micron recognized that commodity DRAM like DDR DRAM is separate from HBM, listing "HBM, LP, DDR DRAM, and SSD" as its portfolio of products. In its Q4 2025 report, Micron discussed the performance of "Our HBM business." Micron discussed financial forecasts for "DRAM… excluding HBM." Micron also discussed the "HBM customer base" and the "HBM market" separately from other DRAM.

137. During its Q1 2026 earnings call, an executive from Samsung discussed the different markets for "HBM" and "conventional DRAM" with an industry analyst.

138. Industry analysts such as Counterpoint research and Future Markets release reports that discuss market trends and manufacturing separately for HBM and "conventional DRAM." The technology focused research firm AlphaTarget, in its March 2, 2026 report on "the AI Memory Boom," explained that "Conventional DRAM" and "HBM" are distinct "sub-types": "Conventional DRAM typically serves as CPU-attached system memory, while High-Bandwidth Memory (HBM) is a specialised variant of DRAM used in AI GPUs. HBM provides much higher bandwidth than conventional DRAM and is essential for keeping GPUs fed with data during active computation."

139. Trendforce publishes reports detailing price trends in the market for "conventional DRAM," which is separate from and excludes HBM.

140. ***Peculiar Characteristics and Uses.*** DRAM has unique technical characteristics that distinguish it from every other semiconductor product, including other types of memory.

141. DRAM is volatile memory: it retains data only while power is supplied. Each DRAM cell consists of a single transistor and a single capacitor, and the charge in the capacitor dissipates within milliseconds, requiring the memory to be continuously "refreshed" (hence "dynamic"). This fundamental physical characteristic—volatility—distinguishes DRAM from NAND flash, which is non-volatile and retains data indefinitely without power. Volatility enables DRAM's speed.

142. DRAM operates at nanosecond-scale access times—typically 10-20 nanoseconds for a random read. This is roughly 1,000 times faster than NAND flash (which operates at microsecond-scale access times) and millions of times faster than hard disk drives (which operate at millisecond-scale access times). This speed makes DRAM the only memory technology suitable for use as a processor's active working memory—the space where the operating system, running applications, and data being actively processed reside during operation.

143. Every computing device requires DRAM to function. The DOJ recognized this in its 2005 prosecution, describing the breadth of DRAM-dependent products:

> DRAM is used in personal computers, laptops, workstations, servers, printers, hard disk drives, personal digital assistants (PDAs), modems,

> mobile phones, telecommunication hubs and routers, digital cameras, video recorders and TVs, digital set top boxes, game consoles, and digital music players.

144. Since 2005, the universe of DRAM-dependent devices has expanded to include automobiles, IoT devices, industrial automation equipment, medical devices, and AI training hardware.

145. No other product can substitute for DRAM:

- NAND flash is non-volatile and used for long-term data storage (SSDs, USB drives, smartphone storage). It is approximately 1,000 times slower than DRAM and cannot serve as working memory. No device uses NAND flash in place of DRAM.
- SRAM (Static RAM) is faster than DRAM but requires four to six transistors per bit compared to DRAM's one transistor and one capacitor. This makes SRAM approximately 30-100 times more expensive per bit than DRAM, limiting its use to small processor caches (typically measured in megabytes, not gigabytes). No device uses SRAM in place of DRAM for main memory.
- Hard disk drives are mechanical storage devices operating at millisecond access times—orders of magnitude slower than DRAM. They serve an entirely different function (long-term bulk storage) and cannot substitute for DRAM in any application.
- Emerging technologies such as Intel's Optane (3D XPoint) persistent memory attempted to bridge the gap between DRAM and NAND but were commercially unsuccessful. Intel discontinued its Optane business in 2022, confirming that no alternative technology has been able to substitute for DRAM.

146. DRAM chips are manufactured to technical specifications set by JEDEC. Because chips conforming to a given JEDEC standard—DDR4, DDR5, LPDDR5X, GDDR6—are functionally interchangeable regardless of manufacturer, commodity DRAM is a fungible product. An OEM designing a laptop can source DDR5 modules from Samsung, SK Hynix, or Micron and expect identical performance. This fungibility further distinguishes commodity DRAM as a distinct product market: purchasers view DRAM from different manufacturers as substitutes for each other, but do not view DRAM and NAND (or any other product) as substitutes.

147. HBM (High Bandwidth Memory) is excluded from the relevant conventional DRAM market. Although HBM is technically composed of DRAM dies, it is a distinct product.

148. HBM consists of multiple DRAM dies vertically stacked and interconnected using through-silicon vias ("TSVs"), requiring specialized advanced packaging technologies such as TSMC's CoWoS (Chip-on-Wafer-on-Substrate).

149. Dies that will be packaged together to become HBM are manufactured differently than dies that become conventional DRAM. For example, dies that become HBM must be manufactured with the vias and bumps required to later stack the chips.

150. HBM requires approximately three to four times the silicon wafer area per gigabyte compared to conventional DDR5 DRAM.

151. HBM is sold exclusively to a narrow set of AI accelerator customers—principally Nvidia for its H100, H200, and Blackwell-series GPUs—and is not available for purchase by OEMs, consumers, or other commodity DRAM customers.

152. HBM commands prices several times higher per gigabyte than commodity DRAM.

153. HBM is manufactured on different production lines using different processes and equipment than commodity DRAM.

154. HBM cannot be used in place of DDR5 in a PC, server, smartphone, or any other commodity DRAM application, and DDR5 cannot be used in place of HBM in an AI accelerator. The two products are not interchangeable in any direction.

155. ***Unique Production Facilities.*** Conventional DRAM is manufactured in specialized semiconductor fabrication facilities ("fabs") that are purpose-built for DRAM production, cost $15-20 billion to construct, and cannot be readily converted to produce other types of semiconductors.

156. DRAM fabs use process technologies, photolithography equipment, and manufacturing flows that are distinct from those used for logic chips (CPUs, GPUs), NAND flash, analog semiconductors, or any other semiconductor product. The production facilities required for DRAM manufacturing are set forth in detail in Section II (The Fabrication Barrier to Entry), *supra*.

157. The specialized nature of DRAM fabs is confirmed by the industry's structure. No DRAM manufacturer produces logic chips on the same production lines, and no logic foundry (such as TSMC, GlobalFoundries, or UMC) produces DRAM.

158. Samsung, which operates both a Memory division and a Foundry (logic) division, maintains physically separate fabrication facilities for each. DRAM fabs and logic fabs use different equipment configurations, different chemical processes, different mask sets, and different quality control procedures.

159. DRAM fabs require extreme ultraviolet ("EUV") lithography systems manufactured almost exclusively by ASML Holding N.V., costing approximately $200 million per system. A single advanced DRAM fab may require dozens of EUV systems. ASML's limited annual production capacity (fewer than 100 EUV systems per year) is itself a constraint on DRAM production capacity, as discussed in Section II.B, *supra*.

160. Furthermore, HBM and conventional DRAM are not produced together.

161. The dies for HBM are specifically made for HBM and not conventional DRAM. Those chips (for HBM) then go through additional manufacturing, called packaging, where the chips are stacked on top of each other. Additional materials and technology are needed for packaging. For example, "[a] critical ingredient in HBM DRAMs is through-silicon vias (TSVs) - vertical wires used to electrically connect the stacked chips." Physical differences have to be made during the original processing of the wafer for HBM as opposed to conventional DRAM to allow the packaging.

162. Defendants have to switch manufacturing lines from manufacturing HBM to manufacturing conventional DRAM:

> SK Hynix is planning to convert one of its main DRAM production lines to manufacture high-bandwidth memory (HBM) instead . . . . SK Hynix is planning to install the needed equipment in the first quarter of next year and is aiming to start production of HBM3E in the fourth quarter.

163. The news source BusinessKorea reported that Samsung "convert[ed] DRAM production lines to HBM lines."

164. Packaging of the HBM is done in purpose-built facilities. In its Q1 2026 quarterly report, Micron discussed the "HBM advanced packaging facility" it was constructing.

165. Industry sources explain that "[t]he structure and manufacturing process [for HBM] are more complex than those for standard DRAM products."

166. ***Distinct Customers.*** A defined and identifiable group of customers purchases conventional DRAM specifically, distinct from customers of other semiconductor products.

167. Conventional DRAM is purchased by: (a) PC and server OEMs, including Dell, HP, Lenovo, and others, who incorporate DRAM modules into computers and servers; (b) smartphone manufacturers, including Apple and Samsung Mobile, who embed LPDDR DRAM into mobile devices;

(c) server operators; (d) memory module assemblers, including Kingston Technology, Corsair, G.Skill, and TeamGroup, who purchase raw DRAM chips from Defendants and assemble them into consumer and enterprise memory modules; (e) automotive manufacturers, who incorporate DRAM into vehicle infotainment, driver assistance, and autonomous driving systems; and (f) distributors and retailers serving system builders and individual consumers who purchase DRAM as upgrade components.

168. These customers purchase conventional DRAM as a named, specified product—not as a generic "semiconductor" or "memory" input. Kingston Technology's business model, for example, is built entirely around the assembly and sale of conventional DRAM modules. Corsair's consumer brand identity was built around conventional DRAM products marketed to PC enthusiasts and gamers.

169. The distinct customer base is further confirmed by the downstream effects of the conspiracy. When conventional DRAM prices rose 171% year of year for Q3 2025, the affected customers were specifically identifiable: CyberPowerPC reported a 500% increase in "memory cost"; Raspberry Pi CEO Eben Upton announced multiple rounds of price increases due to memory costs, with some LPDDR4 components more than doubling in cost; Asus reported panic-buying of DRAM specifically; and Dell raised commercial PC prices 10-30% as memory costs surged. Each of these statements and actions refers to DRAM as a distinct input with distinct purchasers.

170. Consumers who purchase conventional DRAM as standalone memory upgrade kits—DDR5 modules from Corsair, G.Skill, Kingston, or TeamGroup—are a distinct customer segment that exists only because conventional DRAM is a distinct product. There is no comparable consumer market for purchasing standalone NAND flash chips (as opposed to SSDs) or standalone SRAM.

171. HBM and conventional DRAM are sold to distinct customer groups. Conventional DRAM is primarily purchased by manufacturers of personal computers, smartphones, consumer electronics, enterprise servers, automotive systems, and memory modules for general-purpose computing applications, or by individual customers or businesses to upgrade devices or build custom devices. By contrast, HBM is a specialized memory product designed for use alongside high-performance processors and AI accelerators, where extremely high memory bandwidth is required. HBM is primarily sold for use in AI accelerators, custom AI processors, supercomputing systems, and other high-performance computing applications requiring extremely high memory bandwidth..

172. ***Distinct Prices.*** Conventional DRAM prices are tracked, reported, and negotiated as a distinct product category, separate from all other semiconductor products.

173. TrendForce publishes dedicated conventional DRAM contract price indices on a quarterly basis, covering DDR4, DDR5, LPDDR, server DRAM, and mobile DRAM. TrendForce also publishes daily conventional DRAM spot prices. These conventional DRAM-specific price indices are published separately from TrendForce's NAND flash, LED, LCD panel, and other semiconductor trackers, and from reports regarding HBM prices and trends. The existence of dedicated conventional DRAM pricing services—operated by multiple research firms over decades—confirms that DRAM prices are distinct.

174. These dedicated conventional DRAM pricing services are sold commercially and disseminated on a recurring schedule. Through its DRAMeXchange membership products, TrendForce offers subscribers downloadable conventional DRAM daily spot prices and monthly contract prices from 2017 to the present in Excel format, DRAM spot and contract price trends in chart form on a weekly, monthly, quarterly, yearly, or customized basis, and the DRAMeXchange Index (DXI) from 2020 to the present. The same products include a "Historical Daily Express" offering a daily look at DRAM spot markets dating to November 28, 2003, and a monthly DRAM contract price early notice that TrendForce states is sent to members before its website is updated. The breadth, granularity, and decades-long continuity of these DRAM-specific pricing products confirm that DRAM prices are tracked, reported, and sold as a distinct product category. TrendForce separately offers an "HBM Package" subscription that offers HBM monthly and quarterly market reports and price updates.

175. Conventional DRAM contract prices increased 171.8% year-over-year as of Q3 2025 and approximately 50% quarter-over-quarter in Q4 2025 and 95% quarter-over-quarter in Q1 2026—price movements specific to DRAM and not observed in other semiconductor categories. The ADATA chairman stated that Q4 2025 would mark the start of a "major DRAM bull market" with "severe DRAM shortages" in 2026—using language that identifies DRAM as a distinct product with its own price dynamics. Industry sources like Toms Hardware and Trendforce likewise report and make estimates of price movements for "conventional DRAM" specifically.

176. Companies like TrendForce track granular price forecasts for conventional DRAM, which further illustrate the distinct pricing dynamics within the conventional DRAM market. For example, TrendForce's forecasts for Q3 2025 were broken out like this:

- DDR4 (PC): 38-43% QoQ increase
- DDR4 (server): 28-33% QoQ increase
- DDR5 (client/server): 3-8% QoQ increase
- LPDDR5X (mobile): 5-10% QoQ increase
- GDDR6: ~30% QoQ increase

177. Quarterly contract price negotiations are conducted specifically for conventional DRAM. These distinct pricing negotiations, tracked by an entire industry of research firms and analysts, confirm that conventional DRAM is a distinct product with distinct prices.

178. Retail pricing further confirms the distinct market. Conventional DRAM is sold at retail as a separately identified product category. Amazon, Newegg, Micro Center, and other retailers list "RAM/Memory" as a distinct product category separate from "Storage/SSDs" (NAND), "Processors" (logic), and other semiconductor products. Retail price data show the same DRAM-specific increase: Conventional 32-gigabyte (2×16GB) DDR5 kits that sold for roughly $100 to $200 in October 2025 rose to about $350 by January 2026, if in stock, and current best-available U.S. prices for individual DDR5 kits stand at multiples of their lowest-ever prices—for example, a Corsair Vengeance RGB DDR5-6000 32GB kit at $439 against an $87 lowest-ever price—an increase specific to DRAM and not observed in other product categories.

179. HBM and conventional DRAM contracts are negotiated differently. Samsung's EVP of Memory explained: "Per industry practice for HBM, we negotiate projected pricing in advance on an annual basis, considering the lead time required to prepare back-end capacity for HBM. Whereas, for conventional DRAM, the negotiations are done on a quarterly basis."

180. ***Sensitivity to Price Changes (Cross-Elasticity of Demand).*** Cross-elasticity of demand between DRAM and any other product is effectively zero. When DRAM prices rise—even by many multiples—purchasers do not and cannot substitute any alternative product.

181. A smartphone cannot operate with NAND flash in place of DRAM. A server cannot substitute SRAM at scale—SRAM costs approximately 30-100 times more per bit than DRAM, and no server architecture uses SRAM for main memory. A PC manufacturer cannot build a computer without DRAM, regardless of how high DRAM prices rise. There is no technological substitute for DRAM in any of its thousands of applications.

182. At present, DRAM demand is almost perfectly inelastic with respect to price. On December 18, 2025, Micron's CEO Sanjay Mehrotra stated on the company's Q1 FY2026 earnings call that Micron was able to meet only approximately 55-60% of core customer demand—yet customers continued purchasing at dramatically elevated prices rather than substituting any alternative product, confirming that demand for DRAM is effectively perfectly inelastic.

183. The market's response to the current price increases confirms this inelasticity. Despite an approximately 697% increase in conventional DRAM contract prices since Q3 2024 and retail price increases of 100-500%, purchasers have not substituted any alternative product. They have responded in the only ways available to them: absorbing the costs and passing them through to consumers; deferring purchases and reducing device configurations; or rationing available supply. None of these responses involves substitution of another product for DRAM.

184. In Japan, Akihabara retailers limited purchases to two SO-DIMMs or four memory sticks per customer, and distributors suspended deliveries of DRAM products. In Taiwan, distributors imposed mandatory 1:1 DRAM-to-motherboard bundle purchase requirements—a practice described as "unprecedented" and "never before seen" in the industry. In the United States, Micro Center removed price tags from DRAM products and switched to spot pricing; Framework stopped selling standalone RAM modules; and Asus reported holding only two months of DRAM inventory while panic-buying on the spot market.

185. None of these customers responded to the DRAM shortage by purchasing more NAND flash, more SRAM, or more hard drives. They rationed DRAM because there is no substitute for DRAM. The zero cross-elasticity of demand between DRAM and all other products confirms that commodity DRAM is a distinct relevant product market.

186. IDC projected a 5% decline in smartphone sales and a 9% decline in PC sales in 2026 due to memory shortages—confirming that the market's response to high DRAM prices is reduced device purchases, not product substitution. An estimated 70% of all memory produced in 2026 will be consumed by data centers, leaving only 30% for consumers, PCs, phones, automotive, and gaming.

187. The Hypothetical Monopolist Test further confirms that commodity DRAM is a properly defined relevant product market. If a hypothetical monopolist of all commodity DRAM imposed a small but significant non-transitory increase in price (SSNIP) of 5-10%, purchasers would have no alternative to which they could turn. They would pay the increased price. Indeed, the actual price increase of approximately 697% has been enormously profitable for Defendants—Micron reported total Q2 FY2026 revenue of $23.9 billion, compared with $8.1 billion in the same period the prior year, an increase of about 195% year-over-year, with non-GAAP gross margin of 75%. And for DRAM specifically, Micron reported $18.8 billion in revenue, a 207% increase year-over-year, confirming that supracompetitive DRAM pricing is sustainable because purchasers have no substitute. Micron further estimated its total revenue in Q3 FY2026 would increase to $33.5 billion with gross margin of approximately 81%.

188. SK Hynix reported full-year 2025 revenue of ₩97.1 trillion (with operating profit of ₩47.2 trillion), up from ₩66.19 trillion total revenue in 2024 and ₩32.77 trillion in 2023. Samsung's Memory division earned ₩74.8 trillion in Q1 2026 compared to ₩37.1 trillion in Q1 2025 and ₩17.49 trillion in Q1 2024, with record margins driven by HBM and server DRAM.

189. Tom's Hardware summarized the dynamic in a headline: "Major memory chipmakers rake in profits." All three Defendants are posting record or near-record financial results during the same period that downstream customers face rationing, panic-buying, and double- and triple-digit price increases.

190. The real-world data confirms what the Hypothetical Monopolist Test predicts. Defendants have imposed price increases far exceeding any 5-10% SSNIP—DRAM prices rose approximately 697% since Q3 2024—and no purchaser has switched to a substitute product. OEMs absorbed the increases, passed them to consumers, or reduced the amount of DRAM in their products. No buyer substituted NAND flash, SRAM, or any other product for DRAM. The market did not break. It simply paid.

191. Likewise, customers cannot switch between HBM and conventional DRAM when prices change. Manufacturers of AI accelerators, AI training systems, and other HBM-enabled computing

platforms cannot respond to an increase in HBM prices by purchasing conventional DRAM, because their products are designed around HBM's unique architecture and performance characteristics. Likewise, purchasers of conventional DRAM for laptops, desktop computers, servers, and other traditional computing devices cannot respond to increases in conventional DRAM prices by purchasing HBM, which is not designed for those applications.

192. As researchers from Microsoft stated, "Unfortunately, there is currently no viable alternative to HBM. Non-stacked DRAM does not have the required density [and] lack[s] the energy efficiency required in package. . . . AI clusters will remain dependent on HBM."

193. And as a director of engineering at chip-interface-technology company Rambus explained, "HBM's advanced packaging, higher cost per gigabyte, limited total capacity, lack of field upgrades, and thermal challenges prevent it from replacing DDR5 in mainstream systems. As a result, DDR5 remains the default for capacity- and cost-sensitive workloads, while HBM is reserved for bandwidth-critical deployments where its premium is justified. Looking forward, both technologies will continue to advance rather than converge." "The industry's response has been fascinating: rather than pursuing a single solution, two distinct memory architectures have evolved to address fundamentally different requirements. DDR5 optimizes for capacity, cost, and general-purpose computing. HBM (High Bandwidth Memory) sacrifices everything for bandwidth."

194. ***Specialized Vendors.*** The commodity DRAM market is served by a highly concentrated group of specialized manufacturers. No general-purpose semiconductor company manufactures DRAM.

195. Samsung's Memory Business division—which manufactures DRAM and NAND—is organizationally and operationally separate from its Foundry division (which manufactures logic chips for third-party customers such as Qualcomm and Nvidia) and its System LSI division (which designs mobile processors). Samsung maintains physically separate fabrication facilities for memory and logic. SK Hynix exclusively manufactures memory products—DRAM and NAND—and does not manufacture logic chips, analog chips, or any other semiconductor product. Micron likewise manufactures exclusively memory products. These are specialized DRAM vendors in the fullest sense.

196. The remaining DRAM vendors are also specialized memory manufacturers. Nanya Technology Corporation (Taiwan) manufactures exclusively DRAM. Winbond Electronics Corporation

(Taiwan) manufactures specialty DRAM and NOR flash. Powerchip Semiconductor Manufacturing Corporation ("PSMC") (Taiwan) provides DRAM foundry services. Changxin Memory Technologies ("CXMT") (China) manufactures exclusively DRAM. Fujian Jinhua Integrated Circuit Company (China) manufactures exclusively DRAM. No general-purpose semiconductor company—such as TSMC, Intel, Broadcom, Qualcomm, Texas Instruments, or NXP—produces DRAM.

197. The consolidation described in Section I.C, *supra*, confirms the specialized nature of DRAM manufacturing. Each of the twenty-plus firms that exited the DRAM market over the past two decades was a specialized DRAM manufacturer; none transitioned to logic chips or other semiconductor products.

198. Samsung, SK Hynix, and Micron have collectively dominated global DRAM revenue since the industry consolidated to three major producers. As of Q3 2025, TrendForce reports that the Big Three account for 91.5% of total DRAM revenue (including HBM). The modest remaining share outside the Big Three reflects the entry of Taiwanese and Chinese commodity DRAM producers at older technology nodes—producers that, as discussed in Section II, *supra*, are capped at DDR4 by U.S. export controls and cannot manufacture DDR5, LPDDR5X, GDDR7, or HBM.

199. HBM is sold through specialized commercial channels distinct from those used for conventional DRAM. HBM suppliers negotiate directly with a small number of qualified AI-accelerator, supercomputing, and high-performance computing customers through lengthy qualification and co-development processes. Conventional DRAM, by contrast, is sold through broader OEM, module-maker, distributor, and channel networks serving traditional computing applications.

B. Market Participants and Market Concentration

200. TrendForce reported in November 2025 that global DRAM industry revenue reached $41.4 billion in Q3 2025 alone, a 30.9% increase quarter-over-quarter. The revenue shares of the principal DRAM manufacturers were as follows:

- SK Hynix: $13.75 billion revenue; 33.2% market share
- Samsung: $13.50 billion revenue; 32.6% market share
- Micron: $10.65 billion revenue; 25.7% market share

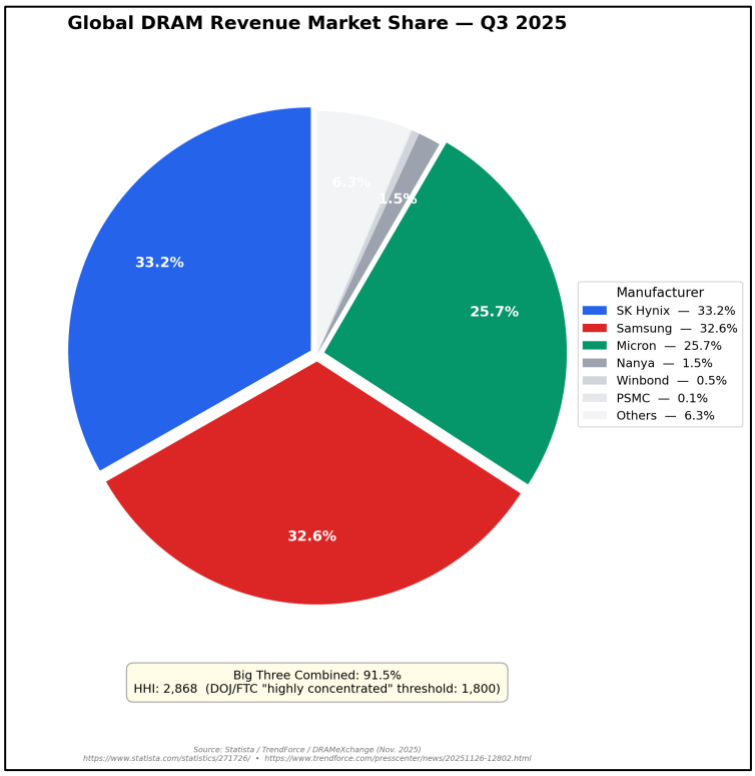
- Nanya Technology: $627 million revenue; 1.5% market share
- Winbond: $222 million revenue; 0.5% market share
- PSMC: $33 million revenue; 0.1% market share
- Others (incl. CXMT): $2.62 billion revenue; 6.3% market share
- Total: $41.40 billion; 100%

201. TrendForce reported that SK Hynix "maintained its leading position in 3Q25," with "revenue grow[ing] by 12.4% QoQ to $13.75 billion, driven by seasonal ASP increases and a significant boost in total bit shipments." Samsung "retained its position as the second-largest player with a 32.6% market share." Micron "experienced substantial growth in both ASP and bit shipments" with "revenue jump[ing] to $10.65 billion, reflecting a 53.2% QoQ increase."

202. Measured by total DRAM revenue in Q3 2025, the three Defendants control 91.5% of reported revenue, leaving every other producer in the low single digits.

203. Using the reported total DRAM revenue shares as a proxy for market structure, the Herfindahl-Hirschman Index ("HHI") for Q3 2025 is approximately 2,868 ($33.2^2 + 32.6^2 + 25.7^2 + 1.5^2 + 0.5^2 + 0.1^2$ + residual). This is well above the 1,800 threshold that the DOJ and FTC identify as presumptively indicating a "highly concentrated" market. U.S. DEP'T OF JUSTICE & FTC, 2023 MERGER GUIDELINES § 2.1 (Dec. 18, 2023). The FBE set forth in Section II, *supra*, ensures that this concentration is permanent and that no new entrant will emerge to challenge Defendants' dominance.

204. Figure 1 below illustrates Q3 2025 DRAM market share by revenue, as reported by TrendForce:



205. Figure 3 below presents TrendForce's detailed Q3 2025 revenue and market share data for each DRAM manufacturer:

3Q25 DRAM Supplier Revenue Ranking

Ranking	Company	Revenue (US$M)			Market Share	
		3Q25	2Q25	QoQ	3Q25	2Q25
1	SK hynix	13,750	12,229	12.4%	33.2%	38.7%
2	Samsung	13,500	10,350	30.4%	32.6%	32.7%
3	Micron	10,650	6,950	53.2%	25.7%	22.0%
4	Nanya	627	341	84.0%	1.5%	1.1%
5	Winbond	222	183	21.4%	0.5%	0.6%
6	PSMC	33	20	62.8%	0.1%	0.1%
	Others	2,617	1,561	67.6%	6.3%	4.9%
Total		41,399	31,634	30.9%	100.0%	100.0%

Notes:
1. Supplier revenue figures include outsourced foundry production. Foundries do not include external DRAM sales in their revenue calculations.
2. 2Q25 exchange rate—USD:KRW=1:1,400; USD:TWD = 1:30.9
3. 3Q25 exchange rate—USD:KRW=1:1,387; USD:TWD = 1:29.9
Source: TrendForce, Nov. 2025

TrendForce

For more information on reports and market data from TrendForce's Department of Semiconductor Research, please click here, or email the Sales Department at SR_MI@trendforce.com

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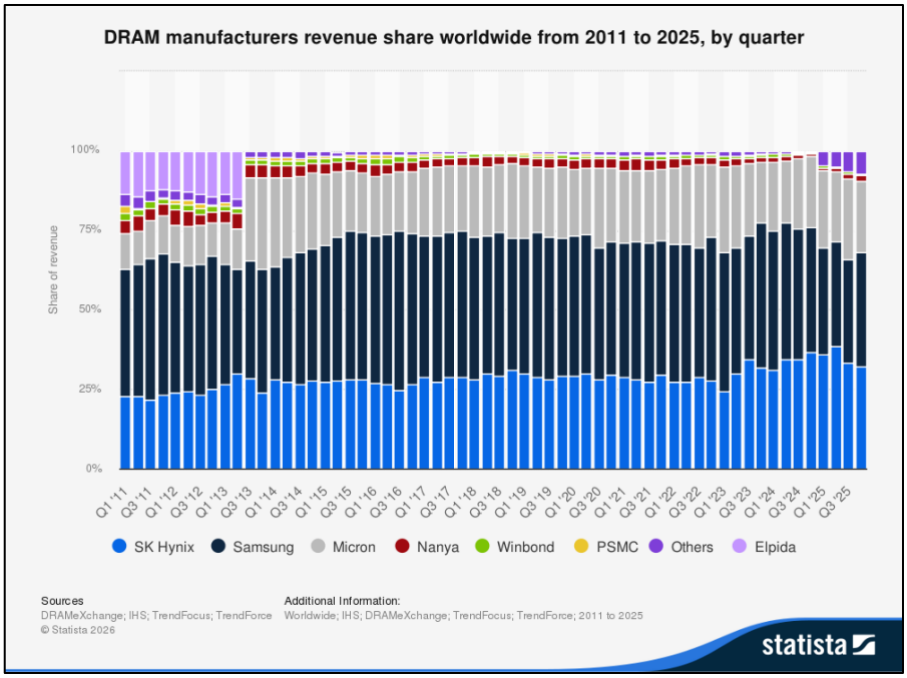
206. Although total overall DRAM revenue from Q3 2025 includes profits from HBM, Defendants' dominance has been above 90% for many years, including before the boom of AI and HBM in the last few years. Figure 2 below illustrates Defendants' revenue share of the DRAM market from 2011 to 2025 based on figures from DRAMeXchange and TrendForce.



207. Indeed, since Q3 2013, after Micron acquired Elpida Memory, Inc, Defendants Samsung, SK Hynix, and Micron have held more than 90% of the market share every single quarter.

208. Further, industry sources estimate that in 2025, revenue from HBM made up roughly 30% of all DRAM revenue. Furthermore, research firm Counterpoint reported that in Q3 2025, total DRAM market share was: Samsung 33%, SK Hynix 33%, Micron 26%, CXMT 6%, Nanya 2%, Others 1%. Counterpoint also reported that in Q3 2025, the Global HBM market share by revenue was: SK Hynix 56%, Samsung 23%, and Micron 21%. Weighing the market share numbers based on the assumption that 30% of revenue came from HBM and 70% of revenue came from non-HBM DRAM (ie, conventional DRAM) results in estimated conventional DRAM market share numbers as follows: Samsung 37.29%, SK Hynix 23.14%, Micron 28.14%, CXMT 8.57%, Nanya 2.86%, and others 1.43%. The three defendants therefore make up 88.5% of the conventional DRAM market under this estimation method.

209. Using this estimation of conventional DRAM market shares, the Herfindahl-Hirshman Index is 2801.5 ($37.29^2 + 28.14^2 + 23.14^2 + 8.57^2 + 2.86^2 + 1.43^2 = 2801.5$). This is similar to the 2868 calculated using total DRAM revenue and is well above the 1,800 threshold that the DOJ and FTC identify as presumptively indicating a "highly concentrated" market.

C. The Relevant Geographic Market

210. The relevant geographic market is the United States. The geographic market is defined by where purchasers can practicably turn for supply and where Defendants sell DRAM and restrain trade, and on both measures the market is the United States. United States purchasers buy DRAM from Defendants on Defendants' terms, and the challenged conduct raises the prices those purchasers pay. Even if the relevant geographic market were treated as worldwide, the same three Defendants control the overwhelming share of DRAM supply, and the challenged conduct has direct and substantial effects on United States commerce.

211. DRAM is manufactured and priced globally, which deepens rather than dilutes United States purchasers' dependence on Defendants. Samsung manufactures DRAM primarily in Pyeongtaek and Hwaseong, South Korea. SK Hynix manufactures primarily in Icheon and Cheongju, South Korea. Micron manufactures in Hiroshima, Japan; Boise, Idaho; and Manassas, Virginia, with a new fabrication facility under construction in Clay, New York that broke ground in January 2026 and is expected to begin production around 2030.

212. Contract prices are negotiated quarterly between Defendants and their major customers and are tracked by TrendForce as a single worldwide market. Defendants' supply restriction decisions—production cuts, HBM reallocation, and the DDR4 exit—are made at the level of global capacity, and a cut made in South Korea or Japan raises the price every United States purchaser pays.

213. United States purchasers also cannot discipline Defendants by turning to producers outside the Big Three. The remaining DRAM producers, principally the Chinese firms CXMT and Fujian Jinhua, are capped by United States export controls. The Bureau of Industry and Security promulgated those controls in October 2022 and updated them in October 2023, restricting the firms' access to advanced chipmaking equipment and limiting them to older-generation DRAM. They cannot manufacture competing DDR5, LPDDR5X, GDDR7, or HBM, and they cannot acquire the equipment necessary to

do so. For United States purchasers that need current-generation DRAM, those producers are not a meaningful substitute and impose no competitive constraint on Defendants.

214. Each Defendant sells DRAM products throughout the United States, directly and through subsidiaries. Samsung Semiconductor, Inc. (San Jose, California) and SK Hynix America Inc. (San Jose, California) serve as their respective parent companies' U.S. sales, marketing, and distribution arms. Micron Technology, Inc. is a U.S.-headquartered company (Boise, Idaho) that sells directly throughout the United States. The effects of Defendants' coordinated conduct are felt by every DRAM purchaser in the United States.

IV. DEFENDANTS' HISTORY OF DRAM PRICE-FIXING

215. Defendants' current conduct must be understood against the backdrop of repeated anticompetitive conduct in the same product market. The following sections describe the criminal DRAM cartel of 1998-2002 and the subsequent 2016-2018 DRAM price spike involving the same three firms.

A. The First DRAM Cartel (1998-2002)

216. Between approximately July 1, 1998, and June 15, 2002, Defendants Samsung, Hynix (now SK Hynix), and Micron—together with co-conspirators Infineon Technologies AG and Elpida Memory—operated a criminal cartel to fix the prices of DRAM sold to six major American computer manufacturers: Dell Inc., Compaq Computer Corporation, Hewlett-Packard Company, Apple Computer Inc., International Business Machines Corporation (IBM), and Gateway Inc. There were approximately $7.7 billion in DRAM sales in the United States in 2004 alone.

217. The conspirators fixed prices through a straightforward mechanism. According to the DOJ's charging documents, they participated in meetings, conversations, and communications with competitors to discuss the prices of DRAM to be sold to specific customers; agreed during those meetings to charge prices at certain levels; issued price quotations in accordance with the agreements reached; and exchanged sales information for the purpose of monitoring and enforcing adherence to the agreed-upon prices. The meetings took place at industry trade shows and in private; the phone calls were between executives who were supposed to be competitors.

218. The DOJ's criminal investigation produced guilty pleas from four companies. Infineon Technologies was the first to plead guilty, in October 2004, paying a $160 million fine—then the third-

largest criminal antitrust fine in U.S. history. Hynix pleaded guilty in May 2005 and paid $185 million. Samsung pleaded guilty in October 2005 and paid $300 million—the second-largest individual criminal antitrust fine in American history at the time. Elpida Memory pleaded guilty in January 2006 and paid a fine of approximately $84 million.

219. Infineon's guilty plea was accompanied by individual prosecutions. Four Infineon executives—T. Rudd Corwin, Peter Schaefer, Gunter Hefner, and Heinrich Florian—each pleaded guilty in December 2004. Each served a prison term of four to six months and paid a $250,000 fine. Three of the four were German citizens who traveled to the United States to serve their sentences.

220. Samsung's executive prosecutions were the most extensive. Sun Woo Lee, Senior Manager of DRAM Sales at Samsung Electronics, pleaded guilty on April 5, 2006 and was sentenced to eight months in federal prison with a $250,000 fine. Yeongho Kang, Associate Director of DRAM Marketing at Samsung Semiconductor's U.S. subsidiary, received a sentence of seven to eight months. Young Woo Lee, Sales Director of Samsung Germany, also received seven to eight months.

221. In December 2006, Young Hwan Park—who had served as Vice President of Sales at Samsung Electronics and later became President of Samsung Semiconductor's U.S. subsidiary—was sentenced to ten months in prison with a $250,000 fine. Park agreed to assist the government in the ongoing investigation. He was the fifth Samsung executive to agree to a prison sentence in the conspiracy.

222. In total, four companies and eighteen individuals were charged. Criminal fines exceeded $730 million—the second-largest total amount of fines ever imposed in a single DOJ criminal antitrust investigation into a price-fixing conspiracy.

223. Micron participated in the cartel but received conditional immunity from the DOJ for cooperating as a whistleblower. Its cooperation was imperfect. In December 2003, Micron Regional Sales Manager Alfred P. Censullo was charged with obstruction of justice under 18 U.S.C. § 1503 for withholding and altering documents that were responsive to a grand jury subpoena served on Micron in June 2002. Censullo pleaded guilty and was sentenced to six months of home detention.

224. On May 19, 2010, the European Commission fined nine DRAM manufacturers a total of €331 million for the same cartel—the first-ever settlement in an EU cartel proceeding. The fined companies included Samsung, Hynix, Infineon, Elpida, NEC Electronics, Hitachi, Toshiba, Mitsubishi

Electric, and Nanya Technology. Micron received full immunity from EU fines for its role as the whistleblower that exposed the conspiracy.

225. Samsung's treatment of its convicted executives speaks directly to the company's institutional attitude toward antitrust law. Sun Woo Lee, who pleaded guilty to criminal price-fixing and served eight months in federal prison, was subsequently promoted to President of Samsung Germany in 2009 and then to President of Samsung Europe in 2014. Samsung did not discipline Lee for his criminal conduct. It promoted him. A company that rewards executives for serving prison time on antitrust charges has made a corporate calculation: the profits from price-fixing outweigh the personal costs imposed on the individuals who carry it out.

B. The Second DRAM Price Spike (2016-2018)

226. Over the two years preceding August 2018, DRAM prices surged dramatically for the second time in two decades. According to IC Insights, the DRAM average selling price reached $6.79 in August 2018—a 165% increase from August 2016.

227. As in the current period, the 2016-2018 price spike was characterized by simultaneous supply restraint. All three Defendants reported record or near-record profits during the spike, even as customers protested that prices were disconnected from cost fundamentals. The price increases were specific to DRAM and were not observed in other semiconductor categories, confirming that DRAM pricing operates on its own supply-demand dynamics.

228. On April 27, 2018, a class action was filed in this District alleging that Samsung, SK Hynix, and Micron had conspired to fix DRAM prices during the 2016-2018 period. The case was captioned *In re DRAM Antitrust Litigation*, Case No. 4:18-cv-02518-JSW.

229. In May 2018, China's State Administration for Market Regulation launched an antitrust investigation into Samsung, SK Hynix, and Micron over DRAM pricing, following sharply rising DRAM prices and complaints from Chinese terminal-device manufacturers about the cost of DRAM. According to contemporaneous reports, Chinese regulators visited Samsung's, SK Hynix's, and Micron's Chinese offices. The investigation was significant: it marked the first time a major antitrust enforcement agency outside the United States had launched a formal investigation into DRAM pricing coordination among these three Defendants since the European Commission's prosecution of the 1998-2002 cartel.

230. The 2016-2018 litigation was ultimately unsuccessful. Unlike the present action, the 2018 complaint alleged only parallel pricing without identifying unlawful coordinated conduct as set forth here: simultaneous production cuts, coordinated capacity reallocation, coordinated product-line exits, used-equipment withdrawal by Samsung and SK Hynix, and parallel customer vetting, among other specific facts and conduct explained in this Complaint.

231. The DRAM market has now produced three distinct cycles of supracompetitive pricing in the same oligopolistic structure. In 1998-2002, a criminal cartel produced more than $730 million in fines and eighteen individuals charged. In 2016-2018, prices nearly tripled over eighteen months under simultaneous supply restraint, prompting a U.S. class action and a Chinese government investigation. Beginning in 2022, the same three companies—still controlling approximately 92% of global DRAM production—again simultaneously restricted supply while contract prices surged 171.8% year-over-year by Q3 2025 and rose another 50% quarter-over-quarter in Q4 2025 and approximately 93% to 98% quarter-over-quarter in Q1 2026.

232. Against this backdrop of repeated anticompetitive conduct, the current conspiracy is set forth below.

V. THE CURRENT CONSPIRACY: COORDINATED SUPPLY RESTRICTION (2022-PRESENT)

233. Beginning in October 2022 and continuing to the present, Defendants have engaged in a coordinated scheme to restrict the supply of commodity DRAM, artificially inflating prices throughout the United States. The scheme has been executed through a series of parallel actions that, taken together, constitute a comprehensive program of supply management by agreement.

234. The current conspiracy is a coordinated supply-restriction scheme in which Defendants have collectively limited commodity DRAM output, knowing that reduced supply will produce higher prices in a market with inelastic demand and no competitive alternatives. The evidence is set forth in the sections that follow.

A. Simultaneous Production Cuts (October 2022 - Mid 2023)

235. In late 2022 and early 2023, all three Defendants announced and implemented cuts to DRAM production. On October 26, 2022, SK Hynix announced substantial reductions in capital

expenditure—a planned reduction of more than 50% in 2023 capex—together with production cuts of relatively low-margin products and a year-over-year reduction in DRAM and NAND wafer production in 2023.

236. Roughly three weeks later, on November 16, 2022, Micron Technology announced that it was reducing DRAM and NAND wafer starts "by approximately 20% versus fiscal fourth quarter 2022," and that these reductions would be made "across all technology nodes where Micron has meaningful output." Micron's President and Chief Executive Officer, Sanjay Mehrotra, stated that "Micron is taking bold and aggressive steps to reduce bit supply growth to limit the size of our inventory." Micron further stated that it expected its year-on-year bit supply growth to be negative for DRAM in calendar 2023.

237. Micron reaffirmed the reductions the following month. In its fiscal first quarter 2023 earnings presentation, Micron stated that "[a]s previously announced, Micron reduced wafer starts for DRAM and NAND by ~20%."

238. As of January 2023, Samsung had not announced production cuts and had said it would maintain its 2023 capital spending at a level similar to 2022. Industry analysts expected that Samsung might use the downturn to "draw on its deep pockets and superior profit margins to gain market share from smaller peers."

239. In the months that followed, SK Hynix confirmed that its 2023 capital expenditure would be "reduced by 50%+ YoY" and reported reductions in wafer starts of legacy and low-margin products, while Micron reported that it had "further reduced DRAM and NAND wafer starts, which are now down by ~25%."

240. Samsung announced its own production cuts in April 2023. On April 7, 2023, Samsung said it was "lowering the production of memory chips by a meaningful level," and it reported a KRW 4.58 trillion operating loss in its semiconductor (Device Solutions) division for the first quarter of 2023.

241. The losses the Defendants sustained around the time of the cuts were substantial. Samsung reported a KRW 4.58 trillion operating loss in its semiconductor division for the first quarter of 2023. SK Hynix reported an operating loss of KRW 3.402 trillion for the first quarter of 2023. Micron reported a net loss of $5.833 billion for its fiscal year ended August 31, 2023.

242. Contemporaneous reporting described Samsung's reduction as an "unusual output cut," with "no previous announcement recalled by Samsung officials and analysts." The staggered timing is consistent with an unlawful agreement and conspiracy among the Defendants.

243. In its second quarter 2023 results, announced July 27, 2023, Samsung addressed industry-wide production trends. Samsung stated:

> Looking to the second half of the year, the market is expected to gradually move toward stability considering increasing production cuts in the industry.

244. Samsung further reported that "[t]he Memory Business saw results improve from the previous quarter as its focus on High Bandwidth Memory (HBM) and DDR5 products in anticipation of robust demand for AI applications led to higher-than-guided DRAM shipments."

245. Samsung also reported that, by the second quarter of 2023, "the price decline was considerably less than the previous quarter," and that the market was expected to "gradually move toward stability" in the second half of the year as production cuts in the industry took hold.

246. Defendants justified the cuts as inventory management. Micron's November 16, 2022 announcement described "bold and aggressive steps to reduce bit supply growth to limit the size of our inventory." Its annual report for fiscal 2023 described "elevated levels of inventories for suppliers and customers, and significant supply-demand mismatch," and recorded $1.83 billion in charges to write down inventory, with hundreds of millions more for idled fab capacity.

247. The inventory those cuts were said to address peaked and then cleared. By January 2024, Samsung reported that "inventory depletion of DRAM and NAND accelerated." By March 2025, Micron projected ending the fiscal year with tight DRAM inventory.

248. That same month, Tom's Hardware reported that DRAM prices had begun increasing on a monthly basis: "this is the second time in a row that prices jumped by over 20%." The report attributed the prices to the "drying up of supply."

249. A few months later, industry news sources were reporting that "the global memory shortage is real and accelerating." At the same time, Micron itself reported that the DRAM market was "extremely tight."

250. The cuts that Defendants explained as a response to excess inventory remained in force through normalization and tightening in 2024 and depletion in 2025, and Defendants now project the output restraint going forward: "We continue to expect supply-demand conditions for both DRAM and NAND to remain tight beyond calendar 2026."

B. The Coordinated Pivot to HBM (2023-2024)

251. Beginning in approximately 2023, all three Defendants simultaneously redirected a significant portion of manufacturing capacity and capital expenditure from commodity DRAM to High Bandwidth Memory ("HBM"), a specialized high-margin DRAM product used in AI accelerators such as Nvidia's H100, H200, and Blackwell-series GPUs.

252. Because each gigabyte of HBM requires approximately three to four times the silicon wafer area of DDR5, every wafer shifted to HBM production directly and proportionally reduces the available supply of commodity DRAM. Bernstein analyst Stacy Rasgon confirmed that producing a gigabyte of HBM takes "three or four times as many wafers" as DDR5.

253. In 2023, HBM represented approximately 8% of total DRAM revenue—but consumed a far larger share of wafer capacity. This is because HBM manufacturing is uniquely resource-intensive: each HBM stack requires premium process nodes for the individual DRAM dies, through-silicon via ("TSV") processing that reduces yields, and a multi-die stacking process (8-Hi to 16-Hi configurations) that consumes multiple dies per finished unit. A single HBM3E 16-Hi package consumes the equivalent wafer area of many commodity DDR5 modules. The result is that the HBM pivot withdrew disproportionate manufacturing capacity from the commodity DRAM market relative to the revenue HBM generated.

254. Samsung's own earnings releases trace the progression of the HBM pivot in granular detail. In its Q3 2023 earnings release, Samsung stated that its Memory Business "strived to reduce inventory levels by production adjustment rather than by aggressive sales expansion," and that in 2024, the semiconductor business "plans to meet demand for high-performance, high-bandwidth products by increasing sales of HBM3 and HBM3E with the industry-leading HBM production capacity in the industry."

255. In its Q4 2023 earnings release, Samsung confirmed that "[s]pending on memory was concentrated on building out infrastructure at the facility in Pyeongtaek, Korea and expansion of production capacity of HBM, DDR5 and other advanced nodes." By Q1 2024, Samsung reported that "[s]pending on memory was focused on facilities and packaging technologies to address demand for High Bandwidth Memory (HBM), DDR5 and other advanced products."

256. By 2024-2025, SK Hynix had sold out its HBM production, with its memory capacity booked through 2026. Micron had presold substantially all of its HBM production through 2026. Samsung reserved HBM capacity for its highest-tier cloud and AI customers through its combined Foundry and Memory divisions. Each wafer devoted to HBM was a wafer removed from commodity DRAM production.

257. Between March 2023 and March 2026, all three Defendants substantially reallocated production capacity away from commodity DRAM and toward HBM, increasing the share of capacity dedicated to HBM by approximately tenfold.

258. Defendants redirected scarce manufacturing capacity and capital to HBM at the same time that all three held commodity DRAM supply constrained and refused to expand it. All three cut production of commodity DRAM in unison, prices rose, and none stepped in to fill the gap. In a three-firm oligopoly, when all three pivot in unison, the effect on the market is the same as a production quota.

C. The Coordinated Exit from DDR4 and DDR3 (2024-2025)

259. In 2024, Defendants Samsung and SK Hynix retired their DDR3 production lines, reportedly ceasing to supply DDR3 to the market by the second half of 2024. Defendant Micron, by contrast, continued to produce limited quantities of DDR3.

260. Then, in 2025, and all between approximately April and June, all three Defendants announced they would wind down mainstream DDR4 production. Samsung reportedly stopped taking DDR4 orders by June 2025 and planned to complete mainstream shipments by mid-December 2025; Micron told customers that final shipments of mainstream DDR4 and LPDDR4 would occur in approximately the first quarter of 2026; and SK Hynix planned to stop taking orders in October 2025 and complete shipments by April 2026.

261. This wind-down came despite ongoing demand for DDR4, which remained in wide use across existing PCs—some built as recently as 2023—as well as entry-level platforms, servers, and embedded systems.

262. As mainstream DDR4 supply contracted, owners of existing DDR4 systems faced dwindling compatible supply and higher prices, while buyers of new systems faced elevated DDR5 prices.

263. Defendants' coordinated exit from the DDR3 and DDR4 market triggered immediate panic buying. DDR3 and DDR4 prices surged.

264. The coordinated DDR4 exit occurred in the specific context of competitive pressure from Chinese manufacturers. CXMT and Fujian Jinhua had ramped DDR4 production and priced their DDR4 chips at roughly half the cost of comparable South Korean products, with some Chinese DDR4 chips priced about 5% below refurbished chips. In a competitive market, the response to a low-cost entrant is to compete on price, improve manufacturing efficiency, or differentiate the product. Defendants did none of these things. Instead, all three moved to cut production in the DDR4 segment at roughly the same time, ceding the low end to Chinese manufacturers while the remaining supply of DDR4 from the Big Three commanded higher prices as it wound down.

265. As a 2025 article in Tom's Hardware titled "DDR4 Costs Soar as Manufacturers Pull the Plug" reported:

> This pricing surge is more about supply being deliberately throttled than demand suddenly spiking.

266. The article further stated:

> Every wafer shifted to feed Nvidia's H100s or AMD's Instinct accelerators cuts into supply for DDR4. That deliberate reallocation throttles supply, which in turn forces system builders and distributors to stockpile what's left. . . . In effect, mainstream builders are subsidizing the AI boom, shouldering higher costs on legacy parts because memory makers know they can extract maximum profit before pulling the plug.

267. The downstream effects of Defendants' production cuts and the coordinated DDR4/DDR3 exit were immediate and severe. Major OEMs—including ASUS, MSI, and other leading motherboard

and PC manufacturers—engaged in panic buying of RAM stocks. These are among the largest and most sophisticated technology companies in the world; when firms of this caliber resort to panic purchasing, it is powerful evidence that the supply restriction is genuine, severe, and perceived as likely to persist.

268. In Japan, PC retail shops in Akihabara—Tokyo's electronics district—imposed purchase limits on SSDs, HDDs, and RAM modules to prevent stockpiling. Retailers limited customers to two SO-DIMMs and four desktop memory sticks per transaction. Distributors suspended regular deliveries. Japanese retailers reported that these rationing measures were unprecedented in their experience.

269. In Taiwan, distributors began enforcing mandatory DRAM-motherboard bundle sales—requiring customers to purchase a motherboard in order to buy DRAM modules. Taiwan's Economic Daily News reported that this practice was "never before seen" in the memory distribution channel.

270. The result was a market inversion: older, slower DDR4 came to cost more per gigabyte than newer, faster DDR5. By August 2025, DDR4 16GB (2Gx8) chips had risen to about $9.17 each, while comparable DDR5 (2Gx8) chips cost about $5.99, widening the gap to nearly 50%. Samsung's DDR4 was produced on older 1z lines that were already fully depreciated and inexpensive to keep running, yet its price climbed above that of the newer DDR5 meant to replace it.

271. If each Defendant were independently phasing out DDR4 as part of a routine technology transition, the phase-outs would occur at different times, reflecting differences in product mix, customer commitments, and manufacturing capabilities. Instead, all three announced plans to wind down mainstream DDR4 within 2-3 months of each other and to complete the phase out in the same general window of late 2025 to early 2026.

D. The Refusal to Expand Conventional DRAM Supply (2025-2026)

272. The result of Defendants' simultaneous production cuts in commodity DRAM was increased prices. As of Q3 2025, conventional DRAM contract prices had increased 171.8% year-over-year. In Q4 2025, prices increased another approximately 50% quarter-over-quarter. The escalation continued into 2026: conventional DRAM contract prices rose another approximately 93% to 98% quarter-over-quarter in Q1 2026, and TrendForce expected conventional DRAM contract prices to rise a further 58% to 63% quarter-over-quarter in Q2 2026. At the retail level, CyberPowerPC reported a 500% increase in memory costs since early October 2025. High-capacity 64-gigabyte DDR5 kits carried best-

available U.S. prices of roughly $679 to $949. By 2026, Tom's Hardware reported that DDR5 prices had tripled, and in some cases quadrupled, over the prior months. Higher capacity kits rose likewise—a 64-gigabyte DDR5 kit that sold for about $189 in March 2025 sold for more than $425 by November and roughly $1,080 by March 2026.

273. As a November 2025 article in *Tom's Hardware* / CTEE (Commercial Times Electronic Edition) titled "DRAM Prices Skyrocket 171% Year-Over-Year" reported:

> DRAM contract prices have increased by a whopping 171.8% year over year as of Q3 2025. In fact, DRAM prices have risen to the point that they are now outpacing the recent price increases of gold. ADATA chairman Chen Libai reportedly stated that Q4 of 2025 will mark the start of a major DRAM bull market, with 2026 likely to see severe DRAM shortages.

274. As a December 2025 article in *Tom's Hardware* reported regarding CyberPowerPC:

> PC retailer CyberPowerPC has just announced that it will increase prices for memory modules across the U.S. and the U.K. . . . [T]he retailer expects the trend to continue well into 2026 and says that RAM prices have increased by 500% in recent times, along with a 100% increase in SSD prices.

275. But despite these extraordinary prices—the single most powerful supply signal the DRAM industry has ever produced—not one of the three Defendants expanded or announced plans to meaningfully expand commodity DRAM production capacity.

276. The capital expenditure data tells the story of the refusal to expand. Defendant Micron cut capital expenditure from $12.07 billion in fiscal year 2022 to $7.68 billion in fiscal year 2023, a 36% reduction, before it rose to $8.39 billion in fiscal year 2024 and $15.86 billion in fiscal year 2025. And Micron estimates its 2026 capital expenditure at more than $25 billion. But Micron's renewed investments have been directed to HBM and HBM processes like advanced packaging and process-node transitions rather than expanded commodity DRAM capacity. SK Hynix similarly cut capital expenditure by approximately 50% during the same period, and its subsequent capital-expenditure recovery was directed toward HBM and HBM advanced packaging rather than commodity DRAM expansion.

277. TrendForce, the leading DRAM industry research firm, reported in November 2025 that total DRAM-sector capital expenditure reached approximately $53.7 billion in 2025 and was projected

to rise to $61.3 billion in 2026. TrendForce found that the emphasis of this spending was shifting toward HBM production, process technology upgrades, higher-layer stacking, hybrid bonding, and other "high-value products" rather than expanding commodity DRAM output. TrendForce reported:

> Despite higher ASPs boosting profitability across the memory industry, capital spending on DRAM and NAND Flash is only anticipated to increase modestly in 2026. This limited investment growth is unlikely to significantly affect bit output. Instead, the emphasis is shifting from capacity expansion to advancements such as process technology upgrades, higher-layer stacking, hybrid bonding, and high-value products such as HBM.

278. TrendForce's supplier-specific projections gave the same picture, describing where each Defendant's 2026 investment was directed:

- Samsung: TrendForce projected $20 billion in 2026 (up 11% year-over-year) to advance 1C-process HBM production and slightly expand P4L wafer capacity.
- SK Hynix: TrendForce projected spending of $20.5 billion in 2026 (up 17% year-over-year), attributed to HBM4 capacity expansion at its M15x fabrication facility.
- Micron: TrendForce projected $13.5 billion in 2026 (up 23% year-over-year), primarily for 1-gamma node adoption and through-silicon via (TSV) equipment.

279. TrendForce further reported that "cleanroom capacity in the DRAM industry remains limited," that "only Samsung and SK Hynix are able to slightly expand their production lines," and that Micron's new ID1 fabrication facility in the United States "is not expected to become operational before 2027." Consequently, TrendForce concluded, "additional CapEx will have a minimal impact on bit supply growth in 2026."

280. Industry analyst Ben Bajarin of Creative Strategies confirmed the absence of any competitive supply response: "If you look at the forecasts for wafer capacity or substrate capacity, nobody's scaling up."

281. The consequences of the coordinated refusal to expand are now being described by Defendants themselves in catastrophic terms. In February 2026, *Digitimes* reported that Micron characterized the current situation as the "most severe memory supply shortage in more than 40 years"—pretextually framing a shortage that Micron and its co-Defendants created through coordinated supply restriction as an exogenous market condition.

282. TrendForce further forecast that data centers will consume approximately 70% of all memory chips produced in 2026, creating supply shortfalls that will spread to consumer, smartphone, automotive, and other segments. The remaining 30% of global memory output must serve billions of devices and hundreds of millions of users worldwide—a structural deficit that guarantees supracompetitive pricing for the foreseeable future.

283. When HBM demand surged, Defendants raced to expand HBM capacity—investing billions in new packaging lines, bonding technologies, and process development. SK Hynix built an entire new HBM production line. Micron presold its HBM output through 2026. Samsung committed multiple fab lines to HBM.

284. Defendants demonstrated that they are capable of rapid, aggressive expansion when they choose to. They chose not to apply that capability to commodity DRAM, where prices have risen dramatically.

285. TrendForce projected total DRAM-sector capital expenditure of $53.7 billion in 2025, rising to $61.3 billion in 2026, yet expected that investment to have minimal impact on 2026 bit-supply growth because the emphasis had shifted away from capacity expansion toward process upgrades and high-value products such as HBM. That spending was not a near-term ordinary DRAM supply response to the most extreme supply-demand imbalance in the industry's history.

286. A 171% price increase in conventional DRAM between Q3 2024 and Q3 2025, which then continued to increase to approximately 697%, is the single most powerful signal available to induce supply expansion. The simultaneous decision by all three Defendants to forgo a material commodity-supply response is rational only if each is confident the others will likewise refrain, and the Defendants can therefore ride the surge in prices to record margins and profits.

1. The supply Defendants withheld, measured against their own benchmarks

287. The scale of the withheld supply can be measured from Defendants' own statements and the industry's own projections. In August 2022, before the first cut announcement, TrendForce projected 2023 demand bit growth of 8.3%, "sub-10% for the first time in history, and far lower than supply-side bit growth of approximately 14.1%." That 14.1% was the supply path the industry had already planned and funded when the coordinated cuts began.

288. By September 2023, however, Micron told investors: "We expect Micron's year-on-year bit supply growth to be meaningfully negative for DRAM." A planned expansion of roughly fourteen percent became an industry-wide contraction.

289. The withholding was structural. Micron reported that "total wafer start reductions in both DRAM and NAND are approaching 30% versus peak 2022 levels," and that "[d]ue to this structural reduction in capacity, our DRAM and NAND wafer starts will remain significantly below 2022 levels for the foreseeable future." Supply then stayed below demand by Defendants' own account: "In calendar 2024, we expect industry DRAM and NAND supply growth to be below industry demand growth — and meaningfully so for DRAM."

290. No new fabs were needed to restore the withheld supply. As industry analysis explains, "Memory supply can be expanded by migrating to more advanced process nodes with yield improvements, which increases bit supply without requiring new" greenfield "wafer capacity additions"; Samsung's "leading-edge 1c DRAM process node delivers roughly ~70% higher bits output per wafer compared with its 1a node." Each Defendant held, inside its existing fabs, the means to expand. None used it.

291. The coordinated HBM pivot compounded the withholding. TrendForce estimates that "HBM wafer input among the top three suppliers will account for approximately 18%, 22%, and 30% of total DRAM wafer input by the end of 2025, 2026, and 2027," while "HBM bit supply is expected to represent approximately 8%, 9%, and 13% of total DRAM bit supply during the same period." Wafers consumed at more than twice their bit yield are wafers withdrawn from the commodity market.

2. Defendants shelved commodity capacity they had already announced

292. Micron announced its New York megafab on October 4, 2022, committing that "Site preparation work will start in 2023, construction will begin in 2024 and production output will ramp in the latter half of the decade." The official groundbreaking did not come until January 16, 2026. By then, industry reporting stated that "the initial fabrication plant, previously scheduled for mid-2028, is now projected to come online in late 2030."

293. Micron's Boise fab followed the same pattern. Micron broke ground in 2022, announcing that "[c]onstruction on the new fab in Boise is expected to begin in early 2023." In June 2025 Micron told investors: "We expect first DRAM wafer output at ID1 to begin in the second half of calendar 2027, with customer qualifications to follow." Five years from groundbreaking to first output, through the steepest price rise in the industry's history.

294. Samsung reportedly suddenly paused what it had already started. Industry reporting in 2024 stated that "Samsung has further delayed construction and orders for its Pyeongtaek Phase 4 (P4) facility," and that in February 2024 Samsung had "partially halted the construction of its fifth semiconductor plant in Pyeongtaek."

3. The equipment market confirms the coordinated restraint

295. ASML, the sole supplier of the lithography systems that leading-edge DRAM requires, reported in its 2024 annual report that memory "customers have limited their capacity additions, with greater emphasis on the technology transition supporting high-bandwidth memory." Its 2023 report had described "lower overall lithography tool utilization in 2023" at memory customers; its 2025 report, after defendants directed expenditures to HBM, states: "This resulted in semiconductor market growth of more than 20% in 2025 and created a supply-demand imbalance."

296. The other equipment makers made similar statements. Lam Research reported that "memory WFE was down nearly 40% year on year" in calendar 2023, and Applied Materials described memory spending as "technology upgrades, not necessarily new capacity."

297. Put simply, a firm planning to expand orders the tools first, but the order books show no Defendant was planning to expand commodity output.

298. Defendants also withheld the used tools through which smaller producers expand. In March 2024, Reuters reported that "Chipmakers Samsung Electronics and South Korea's SK Hynix Inc have stopped selling used chipmaking equipment for fear of falling foul of U.S. export controls on China and western sanctions on Russia." Whatever the motive, the effect ran in one direction: the secondary tool market that supplies legacy-DRAM capacity went dry while Defendants wound down their own legacy output.

4. Every producer outside the conspiracy expanded

299. The producers with no stake in preserving the shortage behaved competitively. Winbond, a Taiwanese specialty-DRAM maker a fraction of any Defendant's size, immediately expanded its output: "Winbond's capacity for this year and next year is already fully sold out, with utilization running at full load." Its board approved record capital spending for 2026 to expand further.

300. Nanya Technology expanded into the same shortage, reporting first-quarter 2026 revenue of "NT$49,087 million, a 63.1 percent increase compared to that in the fourth quarter of 2025."

301. China's producers, though barred from leading-edge tools by U.S. export controls, grew fastest of all: "According to various media reports, CXMT increased its production capacity from 70,000 wafer starts per month in 2022 to 120,000 WSPM in 2023," on its way to far more, and by 2026 CXMT and YMTC were reported to be "embarking on an unprecedented expansion spree." Chinese makers expanded DDR4 output and cut prices in the very segment Defendants were abandoning.

302. If expansion into record prices were infeasible, Winbond and CXMT could not have done so. If expansion were unprofitable, the smallest producers, with the highest costs, would not have posted record results doing so. The only firms for which continued output restraint was profitable were the three co-conspirator Defendants—so long as not one of them broke ranks and attempted to take market share from the others.

E. The Stargate Supply Lock-Up (October 2025)

303. Defendants' supply throttling for commodity DRAM did not stop there. In approximately October 2025, Defendants Samsung and SK Hynix reportedly signed preliminary agreements to supply OpenAI's "Stargate" data center project with up to 900,000 DRAM wafers per month. OpenAI announced the arrangements as strategic partnerships whose scope and specifics would be shared as plans progress, and Samsung described its participation as a letter of intent. Secondary industry reporting estimated global DRAM production capacity in 2025 at approximately 2.25 million wafer starts per month; on that reported figure, the Stargate commitment, if fully implemented, would represent up to approximately 40% of total worldwide DRAM output committed to a single customer.

304. The public Stargate announcements identified Samsung and SK Hynix; they did not identify Micron. Micron, however, simultaneously shuttered its consumer brand, Crucial

305. If implemented as reported, the commitment, along with the scuttling of Crucial, would reserve a large share of worldwide DRAM output for one buyer, leaving less supply for consumer electronics manufacturers, PC OEMs, automotive companies, smartphone manufacturers, memory module assemblers, retailers, distributors, and consumers. The effect would be to intensify the scarcity already created by Defendants' coordinated commodity-DRAM restraint.

F. Micron Sacrifices Its Crucial Direct-to-Consumer DRAM Channel (December 2025)

306. Micron sold conventional DRAM directly to consumers under a branded retail channel. In December 2025, with consumer DRAM prices at historic highs, Micron announced that it would close that channel—its Crucial business—and wind it down worldwide by the end of February 2026. A firm competing for a shortage would have used such a channel to sell conventional DRAM into record prices. Micron instead surrendered it.

1. Crucial was Micron's direct-to-consumer DRAM channel

307. Crucial was founded in 1996 "believing that everyday consumers can, and should, improve their computers through do-it-yourself upgrades." As a brand of Micron Technology, "Crucial became the first company to sell memory directly to the consumer." Micron describes Crucial as its "global consumer brand" and "the only consumer brand owned by Micron Technology," through which it connects "millions of customers" to Micron's memory and storage technology. Crucial offered a wide range of memory and storage products worldwide, "from leading retail and e-tail stores to commercial resellers and system integrators."

308. Unlike most participants in the memory supply chain, Micron was not limited to selling DRAM to OEMs, module assemblers, hyperscalers, and enterprise customers. Through Crucial, Micron

sold finished DRAM modules directly to individual consumers, gamers, content creators, system builders, small businesses, and institutions. Micron itself drew the contrast with intermediaries: "Unlike module assemblers, Crucial is trusted by consumers because of that unique relationship, which allows us to deliver powerful products you can trust." That direct-to-consumer position distinguished Micron's sales model from one limited to selling to OEMs, module assemblers, and other intermediaries.

2. Crucial's goodwill and commercial significance

309. Over nearly three decades, Micron built Crucial into one of the most recognized retail memory brands in the world, built on Micron's underlying manufacturing. Crucial's "reputation for performance, reliability and compatibility is built on Micron's industry leadership."

310. Over those decades, Micron developed substantial goodwill and brand recognition in the Crucial name among consumers, system builders, and businesses.

311. Industry sources called Crucial "a fixture in PC building" and "synonymous with technical leadership in retail memory." Micron itself said its Crucial brand "is uniquely able to connect millions of customers to the innovation and technology that Micron has been perfecting for more than four decades," serving "leading retail and e-tail stores [and] commercial resellers and system integrators."

312. Crucial products were sold through Micron's direct sales channels and through many of the largest retailers and e-commerce platforms in the United States and internationally, including Amazon, Newegg, Best Buy, B&H Photo, and numerous computer component distributors and resellers.

313. For decades, consumers seeking to upgrade or build personal computers regularly encountered Crucial memory products in retail stores, online marketplaces, technology publications, and computer hardware reviews.

314. Crucial memory products were consistently featured in product reviews, benchmark testing, buying guides, and editor recommendations published by leading technology publications, including Tom's Hardware, AnandTech, PC Gamer, PCMag, TechPowerUp, and other widely read industry sources.

315. Independent reviewers reflected that reputation: Tom's Hardware called the Crucial Pro Overclocking DDR5-6400 kit "a reliable option" and described the DDR5-6000 line as delivering "the performance you expect from high-end memory"; TechRadar praised Crucial Pro Overclocking DDR5

for "fantastic compatibility, great performance, cool style, and a fantastic price"; and PCMag named the Crucial T500 an "Editors' Choice."

316. Crucial grew to offer more than 250,000 different memory upgrades.

317. To support Crucial, Micron invested in and developed industry-leading, comprehensive online compatibility tools and product-selection resources that helped consumers identify appropriate memory upgrades for specific computer systems. The resources included information on over 50,000 computer systems.

318. By virtue of its longstanding market presence, widespread distribution, strong consumer recognition, and direct consumer relationships, the Crucial brand constituted a valuable competitive asset for Micron.

319. Prior to the conduct alleged herein, Micron regularly highlighted the Crucial brand in investor communications, marketing materials, and public statements as an important component of its consumer-facing business.

320. The channel was commercially material to Micron. Crucial-branded products were sold within Micron's Mobile and Client Business Unit. Micron's FY2025 Form 10-K states that MCBU sales include "Crucial-branded SSDs and DRAM sold to the consumer market," and that Micron offered Crucial-branded products both through "a web-based customer-direct sales channel" and through "channel and distribution partners."

321. Micron reported total MCBU revenue of $11.86 billion in fiscal 2025, $11.67 billion in fiscal 2024, and $7.39 billion in fiscal 2023. Micron does not separately break out Crucial's revenue. MCBU—the segment that housed Crucial's direct-to-consumer DRAM sales—reported multibillion-dollar revenue and carried, as of Micron's second fiscal quarter of 2026, a 79% gross margin and a 76% operating margin, both segment-wide figures used here as a public proxy and not a separately reported Crucial margin.

3. The December 2025 exit, at the peak of the consumer shortage

322. On December 3, 2025, Micron announced its decision to exit the Crucial consumer business, including the sale of Crucial consumer-branded products "at key retailers, e-tailers and distributors worldwide." Micron stated that it would continue Crucial consumer shipments through the

consumer channel only until the end of its fiscal second quarter, in February 2026, after which it would no longer supply the consumer channel under the Crucial name, while continuing warranty support and its Micron-branded enterprise products for commercial customers.

323. Despite the vast demand and profitability available in conventional DRAM, Micron attributed the decision to AI-data-center demand. "The AI-driven growth in the data center has led to a surge in demand for memory and storage. Micron has made the difficult decision to exit the Crucial consumer business in order to improve supply and support for our larger, strategic customers in faster-growing segments," said Sumit Sadana, Micron's EVP and Chief Business Officer, in the company's announcement. Micron simultaneously acknowledged the goodwill it was abandoning, thanking "millions of customers, hundreds of partners and all of the Micron team members who have supported the Crucial journey for the last 29 years" and describing the brand as "synonymous with technical leadership, quality and reliability."

324. The trade press understood the move as a reallocation of supply away from consumers. CNBC reported the exit under the headline "Micron stops selling memory to consumers as demand spikes from AI chips", noting that memory was facing "a global shortage" and that AI accelerators consume large quantities of memory—Nvidia's GB200 carries 192GB per GPU and Google's Ironwood TPU requires 192GB of HBM, against the roughly 16GB in an ordinary laptop. Ars Technica reported that Micron was ending "nearly 30 years" of selling RAM and SSDs to PC builders under Crucial. Tom's Hardware reported that Micron was "killing Crucial" and "refocus[ing] on HBM and enterprise customers," winding the brand down worldwide by the end of February 2026 and "reallocating its output and investments" to enterprise-grade products amid AI demand. Forbes and Windows Central reported the same reallocation, the latter noting that once March 2026 began, consumers would no longer be able to buy Crucial RAM and SSDs from PC-part retailers.

4. The exit cannot be reconciled with independent profit maximization

325. Micron exited the direct-to-consumer market at a time when consumer memory prices were at historic highs. Consumer memory prices were up 100% to 500% over the preceding year, the profitability of conventional DRAM had overtaken that of HBM beginning in the first quarter of 2026,

and the Mobile and Client Business Unit that housed Micron's consumer and client sales reported a 76% operating margin, a segment-wide figure used here as a public proxy.

326. In a competitive market, a firm does not abandon a high-margin segment at the peak of a price spike, particularly where it has an established direct-to-consumer channel that its rivals lack; it expands into it. Micron's exit is rational only if Micron was confident, because of the existence of an agreement and/or conspiracy, that Samsung and SK Hynix—neither of which operated a branded consumer channel—would not aggressively compete for the customers Micron was surrendering.

327. Micron's stated justification does not resolve the difficulty. That AI data-center demand was strong explains why Micron might wish to sell more to data-center customers; it does not explain why Micron eliminated its consumer channel rather than supplying it, when consumer prices were at record highs and the channel was highly profitable. As shown in the preceding Section, the "HBM is more profitable" rationale must overcome the three-to-one capacity cost that Micron itself has described, and HBM profitability had fallen below that of DDR5 beginning in the first quarter of 2026. A firm acting in its own self-interest—and lacking assurances that its rivals would refrain from seizing the opportunity—would have leveraged its unique consumer channel to capitalize on the shortage. Micron instead removed it.

5. Micron's scuttling of Crucial coincided with the Stargate supply lock-up by Samsung and SK Hynix

328. The timing of Micron's exit aligns with the Stargate supply lock-up described above. In approximately October 2025, Samsung and SK Hynix reportedly signed preliminary agreements to supply OpenAI's Stargate project with up to 900,000 DRAM wafers per month—a volume reported, if fully implemented, to be on the order of 40% of global DRAM output committed to a single customer—and the public announcements identified Samsung and SK Hynix, not Micron. Within several weeks, in December 2025, Micron announced that it would wind down Crucial by February 2026.

329. The sequence is consistent with a division of approaches rather than independent competition. The two Defendants without a direct-to-consumer brand reportedly committed a large share of supply to the AI mega-project. The one Defendant with a direct-to-consumer brand—Micron, which

was not named in the public Stargate announcements and was uniquely positioned to monetize the consumer shortage—then removed its own consumer channel instead of using it to sell conventional DRAM into record retail prices. The effect of all three decisions was the same: less conventional DRAM reaching consumers, and continued upward pressure on the prices they paid. The supply constraint also reduced the number of vertically integrated DRAM manufacturers maintaining a branded consumer channel, further tightening an already constrained market.

G. Coordinated Customer Vetting and Order Policing (January 2026)

330. Defendants' actions did not stop at internal cuts. Defendants made sure customers felt the cuts acutely. In approximately January 2026, Nikkei Asia reported that all three Defendants had simultaneously implemented enhanced due diligence and customer vetting procedures for DRAM orders. The report, based on interviews with industry participants, revealed that Defendants were questioning customers about end-user identity, order quantities, and the "reality" of reported demand.

331. A GPU and server supplier executive—a customer of Defendants—confirmed the coordinated nature of the policing. "The three companies became stricter and asked us about who we will supply to, how much quantity, and if the demand of our customers are real," the executive told the press. The executive's use of the phrase "the three companies"—describing identical behavior by all three Defendants—is itself evidence of coordination.

332. Tom's Hardware reported a memory-chipmaker employee's explanation that, with demand from AI chip developers already several times larger than everyone else's, the leading memory makers lacked the capacity to focus on smaller-brand customers:

> That's especially true for those [customers] that brutally cut prices and slashed orders over the past few years when end markets were weak. It's a cruel reality, but relationships with memory suppliers matter in a crunch.

333. All three Defendants imposing stricter customer vetting at the same time, during a shortage, is difficult to explain absent coordination. In a competitive market, firms differentiate on customer service; they do not simultaneously adopt the same order-vetting questions—who the customer will supply, how much, and whether its demand is real.

334. The vetting also gives each Defendant a structured view of who is purchasing DRAM and in what quantities. The customer policing bears a direct resemblance to the monitoring mechanisms of the 1998-2002 cartel, in which Defendants' executives "exchang[ed] information on sales of DRAM to certain customers, for the purpose of monitoring and enforcing adherence to the agreed-upon prices." The current vetting serves an analogous function, furnishing the same kind of customer-level visibility the cartel used to monitor and enforce its agreement.

H. "Supply Discipline" Signaling Through Public Communications

335. Throughout 2023 and 2024, all three Defendants signaled through earnings calls and statements that each Defendant would be cutting production.

336. When the executives from each of three firms that collectively control over 91% of a market publicly commits to "supply discipline," the message reaches not only investors but each other. The statements communicate that the firms will not flood the market. In an oligopoly, such public commitments serve the same function as a private agreement: they create mutual confidence that the coordinated strategy will hold.

337. For example, in addition to announcing its "aggressive" production cuts, during its quarterly earnings call in October 2022, SK Hynix spoke almost directly to the other memory suppliers, stating "memory suppliers have begun taking actions, such as cutting back on CapEx and adjusting utilization rates."

338. In discussing its production cuts in February 2023, SK Hynix CFO Kim Woohyun spoke about the "suppliers'" collective actions (the defendants here making up more than 91% market share of the "suppliers"). For example, Mr. Kim stated that, allegedly in response to lower memory demand, the "suppliers have started CapEx reduction as well as utilization rate cuts," that "the effects of suppliers' response toward market condition will . . . eventually improve supply and demand conditions," and that "suppliers are taking actions to bring balance in the demand and supply situation." Mr. Kim further stated, "Once the industries' efforts to lower production growth takes effect from the first quarter and production capabilities are reduced following the CapEx cuts, we expect that not only will inventory levels normalize this year but also a better-than-expected upturn may come next year."

339. In announcing its correlating cuts, Micron publicly stated that it was committed to "exercising supply discipline by making significant cuts to capex and wafer starts."

340. Samsung's Q3 2023 earnings release stated that its semiconductor business "strived to reduce inventory levels by production adjustment rather than by aggressive sales expansion." The phrase "rather than by aggressive sales expansion" tells competitors that Samsung will not pursue the expansion strategy it had employed in every prior downturn. Coming from the firm with the largest capacity and lowest costs, the signal was clear.

341. Defendants went beyond announcing restraint. They publicly promised not to compete for share. On September 29, 2022, nearly a month before SK Hynix announced the first cut, Micron told investors and competitors alike:

> Tool installation and production output will be ramped in line with industry demand growth, which is consistent with our goal to maintain stable bit supply share as well as supply discipline.

342. A commitment to hold "stable bit supply share" is a commitment not to take customers from Samsung or SK Hynix. Made publicly, it assured them of exactly that. Micron repeated the commitment throughout the conspiracy period: in December 2023, "Micron will continue to exercise supply and capex discipline, aligned with our strategy to maintain our long-term bit market share for DRAM and NAND"; in June 2024, "These investments support our objective to maintain our current bit share over time and to grow our memory bit supply in line with long-term industry bit demand"; in September 2024, a commitment to "exercise supply and capex discipline and focus on improving profitability, including walking away from less profitable business"; and in March 2026, with prices at records, "We expect Micron DRAM and NAND supply to grow approximately in line with the industry in calendar 2026."

343. Micron also narrated the industry's collective restraint and forecast its result. In December 2023 it told the market that "Reports indicate that this redeployment of underutilized tools at the leading edge is an industry-wide practice that is likely to constrain industry supply in 2024," and that "We expect calendar 2024 industry supply to be below demand for both DRAM and NAND, which will result in a contraction of industry inventory levels."

344. SK Hynix's announcements carried the same collective framing. Its October 26, 2022 release stated: "Meanwhile, SK hynix predicted that supply will continue to exceed demand for the time being. Given such consideration, the company has decided to reduce its investment next year by more than 50% YoY." By July 2023 it spoke of the cuts in industry-wide terms, telling investors that "a clearer effect of production reduction by memory companies" would appear in the second half. In April 2026 it confirmed the continuing posture: "investment aligned with demand."

345. Wall Street analysts have adopted the framing. Phrases such as "rational supply management," "improved capital discipline," and "more constructive industry dynamics" pervade sell-side research reports on the memory sector.

346. Defendants' signaling has continued throughout the conspiracy. For example, in Micron's 2026 Q1 earnings report, under the heading "Supply efforts," Micron stated,

> As we make progress on our strategic manufacturing initiatives, we will continue to be responsive to the market environment and disciplined with our capex plans.

347. During Micron's 2026 Q2 earnings call, Micron's Chief Business Officer noted Micron's "focus on disciplined investing when it comes to our CapEx going forward."

348. At the same time, SK Hynix's Chief Financial Officer stated in public earning calls that SK Hynix was "adhering to CapEx discipline," and that "[t]he company's policy is to execute investment with CapEx discipline." Likewise, in its 2026 Q1 earnings call, SK Hynix stated, "We will continue to adhere to our CAPEX discipline."

349. In a recent press release, SK Hynix stated, "In compliance with the 'Capex Discipline', SK hynix will focus on products with demand feasibility and profitability to enhance investment efficiency."

350. Meanwhile, Samsung Electronics was likewise signaling. At its Q1 2026 earnings call, Samsung Electronics' head of global sales for its memory business stated that "the demand for DRAM and SSD for conventional servers will increase more sharply than previously anticipated" and "we expect that overall supply shortage situation will continue," but that "we plan to expand HBM4 supply to multiple key customers and keep increasing the portion of AI-related products." Samsung Electronics

executives further stated that "because of the industry-wide constraints in expanding capacity, the supply shortage has actually become more intense."

351. And during the Q4 2025 earnings call, Samsung Electronics executives stated, "For the DS division, in memory, we believe market conditions will remain favorable, driven by AI demand and industry-wide supply constraints," and "expansion of supply capacity remains constrained within the memory sector. We expect a significant shortage of supply relative to demand to continue."

I. Defendants Abandoned Their Competitive Positioning Against Each Other

352. When one firm in an oligopoly restricts output, the profit-maximizing response for rivals is to expand and capture the demand being surrendered. Here, the opposite happened at every turn. When Micron cut wafer starts 20% in October 2022, Samsung and SK Hynix contemporaneously made cuts of their own. When all three pivoted to HBM, none exploited the commodity DRAM gap. When contract prices rose 171% and then more, none raced to expand capacity. All three directed more than $50 billion in capital expenditure elsewhere.

353. Each Defendant's decisions are rational only if it had assurance, because of an agreement and/or conspiracy, that the other two would behave identically. The consistent deviation from the competitive prediction—across multiple decisions, over multiple years—is among the most probative evidence that Defendants' conduct is the product of agreement rather than independent action.

354. Defendants' divergent competitive positions confirm that independent market forces did not produce their common response. AI demand explains why HBM became attractive. It does not explain Samsung's abandonment of its historical maverick strategy, Micron's exit from Crucial at peak consumer prices, or the uniform refusal by all three Defendants to expand commodity DRAM supply in response to record commodity prices.

355. Instead, Defendants converged on a common scarcity-preserving response: restricting commodity output, reallocating capacity toward HBM, exiting DDR4 and DDR3, tying up supply with AI contracts, applying parallel customer-vetting procedures, and refusing to expand commodity DRAM supply despite extraordinary prices. Micron scuttled its very successful Crucial brand. Samsung and SK Hynix rejected two- to three-year long-term agreements with major server-DRAM customers, and insisted on quarterly contracts while anticipating stepwise DRAM price increases through 2027.

356. Defendants' actions indicate a conspiracy. Not only did each company refuse to fill the gap in demand for commodity DRAM, each simultaneously abandoned its competitive positioning against the other Defendants that each had built up over decades. Prior to the conspiracy, the DRAM industry exhibited substantial strategic heterogeneity, with each Defendant pursuing a distinct competitive strategy based on its unique resources, capabilities, and incentives. Economic theory predicts that firms possessing different competitive advantages will seek to maximize profits by exploiting those differences rather than converging on a common business strategy. Consistent with that principle, Samsung leveraged its scale, vertical integration, and financial strength to invest aggressively through industry cycles and pursue market-share gains in downturns. Micron emphasized capital discipline and downstream participation through its Crucial consumer brand, while SK Hynix focused on relationships with OEM customers. Although all three sold largely interchangeable DRAM products, they competed through different dimensions because each firm's assets and capabilities were distinct. As a result, each company historically responded to market conditions in ways that reflected its own competitive advantages and business objectives.

357. Against that backdrop, the post-2022 convergence in strategy is notable. Rather than continuing to pursue their traditional competitive advantages, all three Defendants simultaneously adopted a common approach of supply restriction. From an economic perspective, that convergence is significant because competition among heterogeneous firms would ordinarily be expected to produce differentiated strategies. Instead, Defendants abandoned their historically distinct approaches and adopted the same supply cutting strategy, reflecting the incentives that arise in a highly concentrated oligopoly where reductions in output can increase industry-wide prices and profitability. The shift from strategic heterogeneity to strategic convergence is inconsistent with the manner in which Defendants historically competed and supports the inference that Defendants were no longer acting independently.

358. As discussed above, Samsung abandoned its decades-long counter-cyclical strategy—maintaining or increasing production during downturns to crush weaker competitors—and joined the cuts in April 2023. That reversal is rational only if Samsung had assurance that its rivals would likewise restrain rather than exploit Samsung's sacrifice.

359. Samsung's history shows what its independent conduct looks like. In the 2008-2009 downturn, Samsung kept producing and investing while rivals collapsed. Qimonda, then among the largest DRAM makers, "declared insolvency" in January 2009; Elpida, Japan's last DRAM maker, followed into bankruptcy in 2012. Industry commentary described the strategy as "Winning a Game of CAPEX Chicken." Samsung publicly refused production cuts in the 2019 downturn as well.

360. Samsung began this cycle the same way. In late January 2023 it said publicly that "there will be no artificial production cut in its memory semiconductor production." In February 2023, the Korea Herald reported that Samsung was not planning to seek such a cut, and that Samsung "said it will keep spending at a similar level to last year." Tom's Hardware observed that "Samsung was the only major memory maker that did not cut the output of DRAM and 3D NAND when demand for these commodity ICs dropped."

361. Two months later Samsung reversed. The Korea Herald reported the April 7, 2023 announcement as "the first time the company has made it official, as it had maintained its position not to seek an artificial cut in production." A firm that had used every prior downturn to take share from weakened rivals surrendered that strategy at the moment it would have paid most. The surrender made sense only if Samsung knew the share it declined to take would not be taken from it in turn.

362. Likewise, Micron was perfectly positioned to capture the soaring commodity DRAM demand and prices through Crucial, its competitive differentiation. Instead, Micron abandoned its downstream consumer strategy and shuttered Crucial.

363. SK Hynix likewise was ready to leverage its preexisting relationships with OEMs who were desperate for DRAM and willing to pay increased prices. But instead, SK Hynix abandoned its longstanding emphasis on OEM supply relationships and redirected resources away from the very customers that had historically formed the core of its competitive strategy.

364. Each Defendant simultaneously abandoned the strategy that historically differentiated it from its rivals, thereby eliminating the strategic heterogeneity that had characterized the DRAM industry for decades. A rational firm ordinarily exploits its unique competitive advantages when market conditions become favorable. Here, Defendants did the opposite. Rather than pursuing the distinct strategies that historically defined their competition, all three agreed on the same output-restraint strategy. A rational

company would not abandon its own competitive advantages and leave multiple profitable avenues open to rivals absent assurances that those rivals would do the same.

J. Defendants Sacrifice Short-Term Profits to Maintain Supply Restriction

365. The objective of Defendants' conspiracy was not to abandon commodity DRAM, but to make commodity DRAM substantially more profitable. To achieve that objective, Defendants collectively undertook the actions described herein, including accelerating the end-of-life of DDR3 and DDR4 products, refusing to expand commodity DRAM supply despite soaring demand and prices, directing capital expenditures and manufacturing resources toward HBM, committing significant production capacity to long-term HBM arrangements, and reducing participation in downstream consumer channels such as Micron's Crucial business.

366. Defendants understood that the extraordinary demand created by the AI boom, combined with the industry's extreme concentration, high barriers to entry, and long lead times for new capacity, created a unique opportunity to restrict commodity DRAM supply without fear that new entrants or fringe competitors could quickly replace that supply. Rather than increasing production to satisfy demand, Defendants pursued a strategy of supply discipline designed to increase prices and margins on the commodity DRAM that remained available for sale while simultaneously capturing the growing profits available from HBM.

367. This strategy depended on collective and coordinated action. If any Defendant had continued to compete aggressively for market share by expanding commodity DRAM output, serving customers abandoned by rivals, or investing to increase supply, the resulting increase in available DRAM would have undermined the price increases and margin expansion sought by the others. In that circumstance, the Defendants pursuing supply restraint would have sacrificed volume, customers, and market share without obtaining the supracompetitive profitability they expected.

368. The following analysis shows that Defendants indeed sacrificed profits on commodity DRAM, even taking into account the reportedly large profit margins from HBM—conduct that is not in the interest of the individual companies absent coordination.

369. On Defendants' own reported margins, the conventional DRAM sales that Defendants declined to pursue carried very large operating profits. The figures below are a threshold analysis showing that the profit Defendants forwent was economically material and empirically testable.

1. Micron's reported margins on ordinary memory

370. For its second fiscal quarter of 2026, Micron reported revenue of $23.86 billion, a company gross margin of 74.4%, and a company operating margin of 67.6%. Micron reported these results by business unit. Its Mobile and Client Business Unit ("MCBU")—the segment that includes Crucial-branded DRAM and SSDs sold to consumers—generated $7.711 billion in revenue at a 79% gross margin and a 76% operating margin. Its Cloud Memory and Core Data Center units each reported gross margins of approximately 74% and operating margins of 66% to 67%.

371. At the 76% operating margin Micron reported for its Mobile and Client Business Unit, used here as a public segment proxy for ordinary and client-memory economics, every $100 million of additional segment revenue would carry approximately $76 million of operating income. Measured against Micron's $7.711 billion quarterly MCBU base, the operating profit associated with capturing even a small additional share of that segment's consumer and client demand is substantial:

Incremental sales (MCBU proxy)	**Quarterly operating income**	**Annualized**
1% of MCBU revenue	~$58.6 million	~$234 million
5%	~$293 million	~$1.17 billion
10%	~$586 million	~$2.34 billion
20%	~$1.17 billion	~$4.69 billion

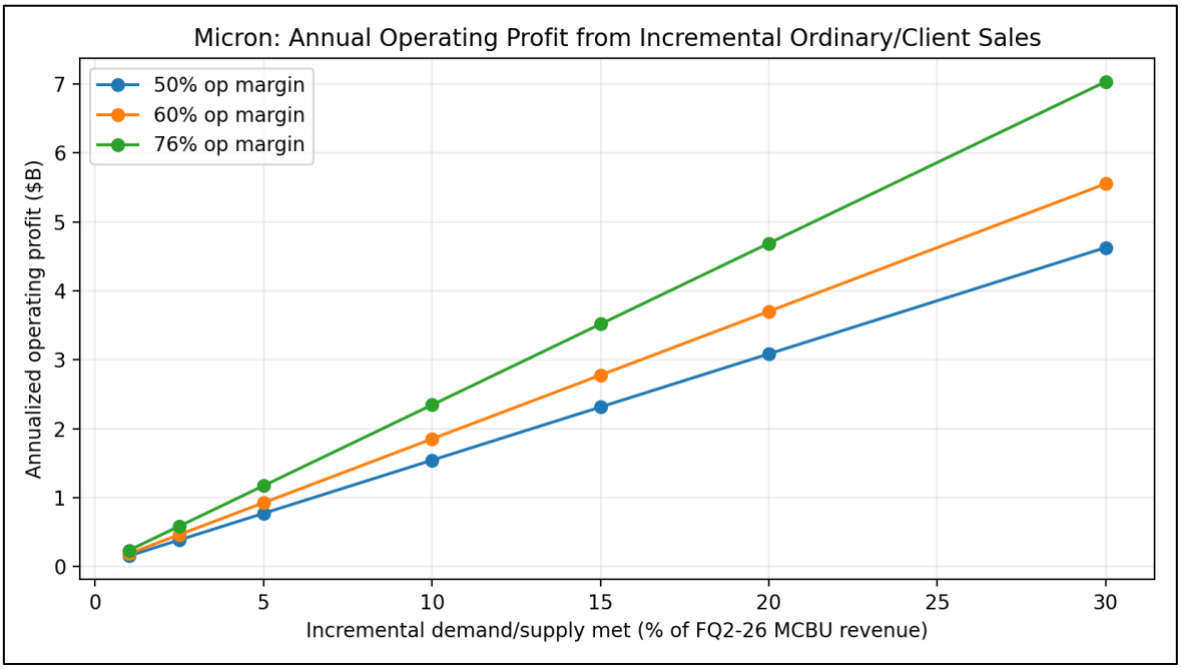


Figure 6—Micron annual operating profit from incremental ordinary/client memory sales, using Micron's reported MCBU segment margin as a public segment proxy.

2. The Three-to-One Capacity Ratio

372. It is incorrect to compare one bit of HBM against one bit of commodity DRAM. The relevant comparison, on Defendants' own description of the technology, is one bit of HBM against three bits of commodity DRAM.

373. Micron's own business chief has described the trade-off. As CNBC reported, "[w]hen Micron makes one bit of HBM memory, it has to forgo making three bits of more conventional memory for other devices," and Micron's Sumit Sadana explained: "As we increase HBM supply, it leaves less memory left over for the non-HBM portion of the market, because of this three-to-one basis." The same reporting recorded that Sadana said Micron was "sold out for 2026," that there "won't be enough memory to meet worldwide demand," and that DRAM prices were expected to rise more than 50% in the quarter, consistent with TrendForce's projection of a 50% to 55% quarter-over-quarter increase in average DRAM prices.

374. The three-to-one ratio implies that HBM is the more profitable use of capacity only if the profit from one HBM bit exceeds the profit from three conventional DRAM bits sold into the shortage. Stated as a threshold: a bit of HBM is the better use of a unit of capacity only where the HBM revenue premium per bit, multiplied by the HBM margin, exceeds three times the ordinary-margin proxy. Solving for the break-even premium at the 76% operating margin Micron reported for its MCBU segment, used here only as a public segment operating-margin proxy rather than a reported commodity-DRAM or Crucial margin, yields the following required HBM revenue premiums:

Assumed HBM margin	**Required HBM revenue premium per bit to beat three conventional DRAM bits**
60%	3.80×
70%	3.26×
80%	2.85×
90%	2.53×

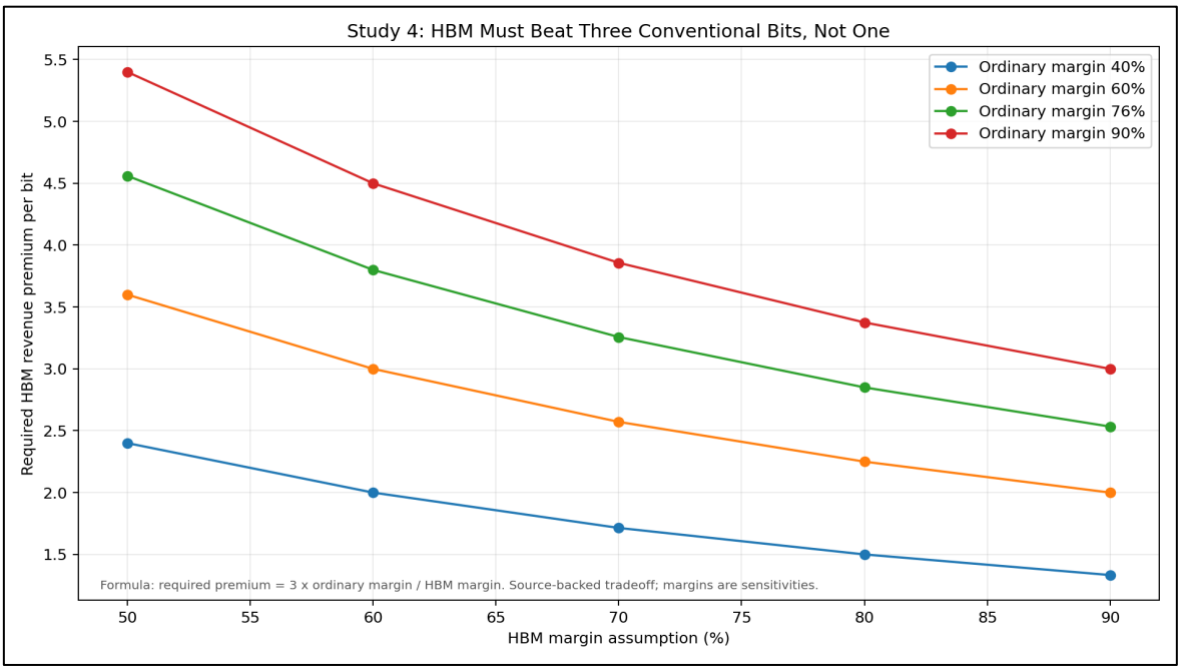

Study 4: HBM Must Beat Three Conventional Bits, Not One
Ordinary margin 40%
Ordinary margin 60%
Ordinary margin 76%
Ordinary margin 90%
Required HBM revenue premium per bit
HBM margin assumption (%)
Formula: required premium = 3 x ordinary margin / HBM margin. Source-backed tradeoff; margins are sensitivities.

Figure 7—Required HBM revenue premium per bit to beat three conventional DRAM bits; margins shown are sensitivity assumptions, with 76% used only as Micron's MCBU segment operating-margin proxy.

375. Once the three-to-one capacity cost is accounted for, HBM must clear a high bar—roughly a two-and-a-half to nearly four times revenue premium per bit, depending on the assumed HBM margin—before it beats the profit available from three commodity bits sold into a market where commodity prices had risen 171.8% year-over-year as of Q3 2025, 50% quarter-over-quarter in Q4 2025, and a further approximately 93% to 98% quarter-over-quarter in Q1 2026.

3. The erosion of HBM's profitability advantage

376. During its Q2 2025 earnings call, Samsung recognized that "considering the upward price momentum for conventional DRAM, so far the second half, based on current signals and also near-term expectations, we believe the difference in margins between HBM3E and conventional DRAMs is expected to narrow sharply."

377. By the spring of 2026, the premium HBM once commanded had compressed. In a report published June 2, 2026 analyzing per-wafer revenue for HBM and conventional DRAM, TrendForce stated:

> Based on TrendForce's analysis of per-wafer revenue for HBM and conventional DRAM—estimated using die size, yield rates, and per-Gb pricing—HBM wafer revenue was overtaken by DDR5 64GB RDIMM in

> 1Q26. This has led HBM profitability to also fall below that of DDR5 64GB RDIMM since 1Q26.

378. Early 2026 trade reporting and Defendants themselves confirmed that conventional DRAM had surpassed HBM profitability by 2026.

379. Samsung confirmed that conventional DRAM is now more profitable than HBM.

380. Micron's CEO stated that "non-HBM margins are currently higher than HBM."

381. SK Hynix noted that standard memory now carries profit margins of 80% while HBM stays around 60%.

382. Supplying commodity DRAM was not a low-margin alternative to HBM. Even where HBM margins were higher per bit, HBM did not necessarily beat the profit from the three commodity bits each HBM bit displaced, and any advantage in profitability HBM possessed began "narrow[ing] sharply" by at least early 2025 and the profitability had flipped completely by 2026. The decision by all three Defendants to leave that profit unclaimed, while commodity prices set records, is difficult to reconcile with independent profit maximization and is economically probative of coordinated restraint.

4. The proceeds went to shareholders, not to supply

383. Capital was not a constraint on production, further indicating that Defendants' conduct is a coordinated restriction on supply and output.

384. On November 15, 2024, with DRAM prices climbing, Samsung announced that "it plans to buy back a total of KRW 10 trillion in the Company's shares to enhance shareholder value." It completed the program by September 2025 and in April 2026 paid its first special dividend in five years. Samsung committed "an annual regular dividend of 9.8 trillion won as a part of total shareholder returns of 50% of the free cash flow."

385. SK Hynix wrote capacity restraint into its shareholder-return policy itself. Its November 27, 2024 program raised the dividend 25% and adopted what the company calls Capex Discipline:

> The Capex Discipline from the plan stipulates that total amount of annual investment has to stay at an average mid-30% range, compared with the revenues to ease uncertainties of the future and enable a quick decision making in accordance with market conditions.

386. A public, policy-level cap on investment is a standing assurance to rivals that SK Hynix will not expand to take their share. In January 2026, alongside record results, SK Hynix announced "an additional dividend of 1 trillion won, equivalent to 1,500 won per share."

387. Micron followed the same pattern. Its fiscal 2025 annual report states: "No shares were repurchased in 2025." In December 2025, it reported "highest ever," record quarterly free cash flow. In March 2026, as consumer memory prices set records, Micron announced that "our board has approved a 30% increase in our quarterly dividend" and resumed buybacks, repurchasing $650 million that quarter.

388. Each Defendant chose distribution over expansion while industry capital spending was projected to have, in TrendForce's words, "a minimal impact on bit supply growth in 2026." These were the choices of firms confident that no rival would use the shortage to take their customers.

5. The same opportunity in the consumer channel

389. The same arithmetic applied with particular force to Micron, the one Defendant that sold conventional DRAM directly to consumers under the Crucial brand. The consumer and client demand that Micron exited fell within its Mobile and Client Business Unit, the segment that reported the 76% operating margin described above. Consumer conventional DRAM prices were at historic highs at the moment of exit.

K. Prior Criminal Antitrust Enforcement for Identical Conduct

390. The same three firms—or their direct predecessors and subsidiaries—took part in a criminal price-fixing cartel in the exact same product market within the past two decades. Samsung and the predecessor of SK Hynix pleaded guilty and paid criminal fines; Micron took part in the same conspiracy but avoided corporate prosecution and fines by reporting the cartel and cooperating with the Department of Justice under its Corporate Leniency Policy.

391. Between approximately July 1, 1998 and June 15, 2002, Samsung, Hynix (now SK Hynix), Micron, and others conspired to fix the prices of DRAM chips sold to major U.S. computer manufacturers including Dell, Compaq, Hewlett-Packard, Apple, IBM, and Gateway. The DOJ's investigation resulted in criminal guilty pleas and fines totaling more than $730 million—at the time, the second-largest total fine ever imposed in a single U.S. criminal antitrust investigation.

392. The individual corporate penalties were as follows:

- Samsung Electronics: $300 million criminal fine (October 2005)—at the time, the second-largest criminal antitrust fine in DOJ history.
- Hynix Semiconductor (now SK Hynix): $185 million criminal fine (May 2005).
- Infineon Technologies: $160 million criminal fine (October 2004).
- Elpida Memory: $84 million criminal fine (January 2006).
- Micron Technology: Received DOJ immunity as the cooperating witness that exposed the cartel. However, Micron employee Alfred P. Censullo, a Regional Sales Manager, was separately charged with obstruction of justice in December 2003 for withholding and altering documents responsive to a grand jury subpoena. Censullo pleaded guilty and was sentenced to six months of home detention.

393. Individual Samsung executives were imprisoned for their roles in the conspiracy. Young Hwan Park, Vice President of Sales at Samsung Electronics and later President of Samsung Semiconductor's U.S. subsidiary, was sentenced to ten months in federal prison and a $250,000 fine. Sun Woo Lee, Senior Manager of DRAM Sales, was sentenced to eight months in prison and a $250,000 fine. Yeongho Kang, Associate Director of DRAM Marketing at Samsung Semiconductor's U.S. subsidiary, was sentenced to seven to eight months in prison and a $250,000 fine. In total, eighteen individuals were charged across all defendant companies.

394. The European Commission separately fined nine semiconductor manufacturers a total of €331 million (approximately $405 million) in May 2010 for the same DRAM cartel. Samsung was fined €145.73 million. Hynix was fined €51.57 million. Micron received full immunity in the EU proceeding as well, having been the whistleblower that exposed the cartel.

395. Samsung and the predecessor of SK Hynix pleaded guilty to fixing DRAM prices in the identical product market within the past two decades, and Micron admitted its involvement in that same conspiracy and entered a corporate leniency agreement with the Department of Justice. Three cycles of coordinated conduct by the same three firms in the same market is a pattern, not a coincidence.

396. The pattern across three cycles is unmistakable:

- First Cycle (1998-2002): Coordinated price floors → DOJ criminal prosecutions; $730M+ in U.S. fines; €331M in EU fines; 18 individuals charged; Samsung executives imprisoned.
- Second Cycle (2016-2018): DRAM prices nearly tripled → Class action; China SAMR investigation into all three Defendants.

- Third Cycle (2022-Present): Coordinated supply restriction → Prices up 171-500% → This action.

397. Three times in twenty-five years, the same three companies, in the same product market, have engaged in coordinated conduct producing supracompetitive prices.

398. In sum, Defendants have: (1) simultaneously cut production; (2) simultaneously pivoted to HBM; (3) simultaneously exited DDR4/DDR3; (4) unanimously refused to expand despite 171% price increases; (5) reportedly committed up to approximately 40% of global DRAM supply to a single customer; (6) eliminated a major consumer brand; (7) implemented identical customer policing; (8) publicly signaled coordinated restraint; and (9) previously taken part in a criminal conspiracy to fix the price of DRAM in the identical market within the past two decades, with Samsung and SK Hynix's predecessor pleading guilty and paying criminal fines and Micron admitting its involvement and cooperating under the Department of Justice's Corporate Leniency Policy.

L. Market Structure Facilitating Coordination

399. The conventional DRAM market possesses every structural feature that facilitates coordinated behavior: (a) extreme concentration (HHI of approximately 2,868; three firms control over 91% of revenue); (b) a homogeneous, JEDEC-standardized commodity product; (c) transparent pricing tracked by TrendForce on a quarterly basis; (d) effectively perfect demand inelasticity, as set forth in Section III, *supra*; (e) insurmountable barriers to entry, as set forth in Section II, *supra*; and (f) a proven history of successful collusion, as set forth in Section IV, *supra*.

M. Opportunity to Conspire

400. Defendants interact through numerous channels: JEDEC committee meetings; quarterly pricing negotiations with the same OEM customers; industry conferences (Flash Memory Summit, SEMICON West, SEMICON Korea, Hot Chips); the Semiconductor Industry Association; and customer qualification processes requiring technical exchanges among competitors.

401. Each Defendants' investor relations resource pages list numerous such events that Defendants are involved in.

402. Further, representatives from each Defendant are often grouped together for various conferences. For example, at the Future Memory Storage Conference 2024, Sui Wei Lim, Micron Head

of Memory Systems and DRAM Architecture, Kapil Sethi, Samsung Semiconductor Director of Product Planning, and Hoshik Kim, SK Hynix Senior Vice Present of Memory Systems, were named together for conference events. SEMICON Taiwan 2025 included a "Memory Executive Summit," whose participants were Jeff (Joonyong) Choi, VP of SK Hynix, Jangseok Choi, VP of Memory Product Planning at Samsung Electronics, and Nirmal Ramaswamy, Corporate VP of Micron DRAM Technology Development. SEMICON Taiwan 2025 likewise featured executives from each Defendant. As another recent example, at least ten senior Micron executives attended SEMICON Korea 2026 with Samsung and SK Hynix.

403. The JEDEC contacts follow a published, recurring schedule. JEDEC's JC-42 committee, whose scope states that "The products within JC-42's scope include all memory integrated circuits," maintains a dedicated DRAM subcommittee, designated "JC-42.3 Subcommittee: Dynamic RAMs (DDRx)," and publishes its meeting calendar: committee meetings ran, for example, August 29-September 2, 2022, March 4-7, 2024, and June 2-5, 2025. Samsung, SK Hynix, and Micron all appear on JEDEC's public member list. The standards process placed Defendants' memory executives and engineers in scheduled, face-to-face contact throughout the conspiracy period.

404. The synchronized moves of 2022-2026 each followed identifiable industry gatherings. SEMICON Taiwan ran September 14-16, 2022—five weeks before SK Hynix announced the first cut on October 26 and nine weeks before Micron's November 16 cut. SEMICON Korea ran February 1-3, 2023, and ISSCC, at which both Samsung and SK Hynix presented, ran February 19-23, 2023—weeks before Samsung's April 7 capitulation. The Memory Executive Summit described above convened the three Defendants' executives in September 2025, weeks before the Stargate announcements of October 1 and Micron's December 3 exit from Crucial; TrendForce previewed it as the first time "the world's top three memory giants—SK Hynix, Samsung, and Micron—will share the stage in Taiwan."

405. The two Korean Defendants also meet at the top. SK Hynix's chief executive serves as "Chairman, Korea Semiconductor Industry Association." And when the Stargate partnerships were announced, the chairmen of Samsung and SK arrived together: as the Korea Herald reported, "Later in the day, Lee, Chey and Altman met with President Lee Jae Myung."

406. The 1998-2002 conspiracy was carried out through precisely these types of contacts. According to the DOJ, participants "participat[ed] in meetings, conversations, and communications in the United States and elsewhere" and "exchang[ed] information on sales of DRAM to certain customers for the purpose of monitoring and enforcing adherence to the agreed-upon prices." The same forums exist today. The same firms attend. The same product is at issue.

N. Defendants Are Reaping the Benefits of Their Supply Cutting Conspiracy.

407. Defendants' supply cutting conspiracy has led to substantial profits for Defendants.

408. In Q1 2023, as Defendants' simultaneous conduct was beginning, Micron recorded approximately $2.7B in revenue from its DRAM business. That number has risen to $18.8B in revenue for Micron's DRAM business in Q2 2026.

409. SK Hynix earned KRW 52.58T in Q1 2026 compared to KRW 17.64T in Q1 2025 and KRW 12.43T in Q1 2024. SK Hynix also reported an operating margin of approximately 72% in Q2 2026.

410. Samsung's memory division earned KRW 74.8T in Q1 2026 compared to KRW 37.1T in Q1 2025 and KRW 17.49T in Q1 2024. And the memory division's Q2 operating margin was estimated at 71% to 77%.

411. These record profits are not the result of the AI surge alone. According to those in the industry, commodity DRAM profitability is nearing or now exceeds that of HBM. TrendForce reported that HBM wafer revenue was overtaken by DDR5 64GB RDIMM in the first quarter of 2026, and that HBM profitability has fallen below that of DDR5 64GB RDIMM since that quarter. This is the direct result of Defendants' conspiracy.

VI. HARM TO COMPETITION AND ANTITRUST INJURY

412. Defendants' coordinated supply restriction has inflicted substantial harm to competition in the conventional DRAM market and to all consumers and businesses that purchase conventional DRAM or conventional DRAM-containing products.

A. Supracompetitive Prices

413. Conventional DRAM prices increased 171.8% year-over-year as of Q3 2025. Q4 of 2025 saw additional increases of approximately 50%. The surge continued into 2026: conventional DRAM

contract prices rose another approximately 93% to 98% quarter-over-quarter in Q1 2026, and were expected to rise a further 58% to 63% quarter-over-quarter in Q2 2026. As alleged above, retail prices rose 100-500% across product categories, and by January 2026 DDR5 retail prices had quadrupled over the preceding months. Corsair Vengeance RGB DDR5-6000 32GB kits carried a best-available U.S. price of $439, against an $87 lowest-ever price. Prices for higher capacity kits rose likewise—a 64-gigabyte DDR5 kit that sold for about $189 in March 2025 sold for more than $425 by November and roughly $1,080 by March 2026.

414. As TrendForce reported on January 6, 2026:

> Samsung Electronics and SK hynix . . . have reportedly pitched first-quarter server DRAM prices up 60-70% from Q4 last year to major clients including Microsoft and Google, while PC and smartphone DRAM buyers are seeing comparable hikes. . . . [B]oth South Korean giants rejecting long-term agreements (LTAs) of two to three years and sticking to quarterly contracts, anticipating stepwise DRAM price increases each quarter through 2027.

415. Samsung's and SK Hynix's reported refusal to enter two- to three-year long-term agreements with major server-DRAM customers is itself evidence of coordination. In a competitive market, sellers lock in long-term contracts to secure customer relationships. Here, both South Korean producers are reported to be rejecting multi-year agreements with major server-DRAM customers because they expect prices to continue rising—an expectation rational only if each is confident the other will not undercut it.

416. Three years into the price surge, no supply expansion has occurred, no Defendant has undercut its rivals, and prices continue to rise quarter over quarter. In a competitive commodity market, price increases of 100-500% attract supply expansion within one to two business cycles. Here, none has occurred.

417. Framework, a modular laptop manufacturer, raised RAM prices by more than 50% in December 2025. A 16GB configuration rose from $80 to $120; a 32GB configuration rose from $160 to $240; and a 96GB configuration rose from $480 to $720. By May 2026, those prices had nearly or more than doubled, with 16GB selling for $320, 32GB for $470, and 96GB for $1410.

418. Raspberry Pi CEO Eben Upton stated that "Memory costs roughly 120% more than it did a year ago," reflecting the impact of the DRAM shortage even on low-cost computing platforms.

419. Winbond Electronics, a Taiwan-based specialty DRAM manufacturer, expanded its DDR4 and LPDDR4 shipments as contract prices surged, lifting its quarterly revenue 91.4% quarter-over-quarter in the first quarter of 2026. Industry-wide, conventional DRAM contract prices rose approximately 93% to 98% quarter-over-quarter in the first quarter of 2026 and were expected to rise a further 58% to 63% quarter-over-quarter in the second quarter of 2026.

420. Winbond' President Pei-Ming Chen stated that the DDR4 supply gap is "so large that it's hard to see how it can be filled." Winbond' capacity for 2026 and 2027 is already fully sold out.

421. The conventional DRAM price increases cascaded throughout the technology supply chain. CyberPowerPC reported a 500% increase in memory costs since early October 2025 and raised prices on prebuilt systems in the U.S. and U.K. SSD prices rose in tandem, as NAND Flash production competes for the same fabrication resources that Defendants redirected to HBM. Dell raised prices not only on PCs but on standalone monitors. The shortage affected every product category containing memory, from smartphones to servers to gaming consoles.

422. Dell announced that starting December 17, 2025, its Pro and Pro Max notebooks and desktops configured with 32GB of memory would see price increases of $130 to $230 per system. For top-end configurations with 128GB of memory, prices would rise by $520 to $765 per system. Storage upgrades to 1TB would add an additional $55 to $135. The increases also applied to AI laptops equipped with NVIDIA Blackwell GPUs—models with 6GB of GPU memory rising $66, and models with 24GB of GPU memory rising $530—and to standalone monitors, with the Dell Pro 55 Plus 4K Monitor increasing by $150.

423. IDC projects a 5% decline in global smartphone sales and a 9% decline in PC sales in 2026, driven by memory shortages.

424. TrendForce projects that data centers will consume 70% of all memory chips produced in 2026, leaving only 30% for consumer electronics, PCs, smartphones, automotive, gaming, industrial, and medical devices. TrendForce's Avril Wu stated: "This time really is different . . . It really is the craziest time ever."

425. Dell announced 10-30% price increases on commercial PCs. CyberPowerPC raised prices on all systems. Minisforum raised prices on all DRAM-containing products. Small system builders and repair shops face existential cost pressures. Schools, libraries, and government agencies on fixed budgets face the choice of delaying technology purchases or reducing quality.

426. Lenovo began stockpiling RAM through forward-looking deals in an effort to insulate its laptop prices from the shortage, a measure that itself reflects the distortion Defendants' conduct has introduced into normal supply-chain relationships.

427. In June 2026, numerous industry associations submitted a joint letter to the U.S. Departments of the Treasury and Commerce warning that the "unprecedented surge in the price of memory chips and reduced supply of these chips" had already caused "price increases for a broad range of everyday consumer electronics and information technology products [and] and risks to the production and availability of automobiles, medical devices, and other manufactured goods." The associations urged the Departments to "[e]nsure that memory semiconductor capacity adequately serves all segments of the market, including consumer-facing and manufacturing industries," and to "[c]losely track conditions in the memory market, including with respect to supply and demand."

B. Artificial Shortages and Rationing

428. The shortages documented above—purchase limits in Japan, mandatory bundle sales in Taiwan, panic buying by ASUS and MSI, and price tags removed from U.S. retail shelves—have persisted and worsened for over a year with no supply response from any Defendant. The persistence of rationing demonstrates that the supply constraint is artificial.

429. In Japan, retail shops in Akihabara imposed purchase limits on memory modules—restricting buyers to two SO-DIMMs and four memory sticks per customer—because distributors had suspended deliveries with no clear timeline for normalization.

430. In Taiwan, distributors began requiring the purchase of a motherboard with every DRAM module—a bundling restriction that Taiwan's *Economic Daily News* described as unprecedented in the industry.

431. In the United States, Micro Center—the country's largest specialty PC retailer—removed price tags from memory products and shifted to spot pricing, updating prices in real time as wholesale costs fluctuated.

432. ASUS and MSI, two of the world's largest motherboard and PC manufacturers, resorted to panic-buying DRAM on the spot market to build stockpiles—a practice historically unprecedented for Tier-1 OEMs, which ordinarily purchase through long-term contracts. ASUS disclosed that it held only two months of DRAM inventory.

433. Framework, the modular laptop maker, stopped selling standalone RAM modules entirely in order to prevent scalpers from buying up its limited supply, reserving available memory for customers purchasing complete laptops. It subsequently raised RAM prices by dramatic amounts.

C. Reduced Consumer Choice

434. Micron's exit from the direct-to-consumer market reduced the number of vertically integrated DRAM manufacturers with a branded consumer channel. The reported phase-out of DDR4 and DDR3, discussed in Section V.C, *supra*, narrows the options available to owners of existing DDR4 systems, who face either paying elevated prices for dwindling supplies of compatible memory or replacing otherwise-functional systems.

435. The simultaneous de-emphasis of DDR3 and DDR4 production, combined with Defendants' coordinated reallocation to HBM, leaves consumers with costly options. Those buying new systems pay inflated prices for DDR5, the supply of which Defendants have constrained even as they continue to produce it. Those who need replacement memory for existing DDR4-based systems face dwindling supply and sharply rising costs, with no competitive alternative available.

436. TrendForce reported in December 2025 that notebook brands were shifting their product portfolios toward lower-specification 8GB models to manage rising memory costs, and that shipments in the mid-range segment were "increasingly shifting toward 8GB models." In the high-end segment, mainstream shipments centered on 16GB configurations—a reduction from prior generations.

D. Strengthening of Barriers to Entry

437. Defendants' conduct does more than inflate today's prices; it raises the very barrier that shields those prices from competitive entry. The Fabrication Barrier to Entry described in Section II,

supra, was already formidable before the conspiracy. Each element of Defendants' coordinated supply restriction has since made that barrier higher, so that entry capable of disciplining Defendants' pricing is more remote now than when the coordinated conduct began.

438. First, the supracompetitive profits generated by the coordinated supply restriction permit further process-technology development and specialization at a level no entrant can approach. Leading-edge DRAM is built on proprietary process nodes like Samsung's 1b and 1c, SK Hynix's 1b, and Micron's 1-beta—developed through decades of accumulated know-how and guarded as trade secrets that cannot be purchased or licensed. A new entrant starting from scratch would need an estimated five to ten years to develop competitive process technology even with unlimited capital. Each additional quarter of supracompetitive profit widens that gap.

439. The capital and equipment barriers have tightened over the same period. Reaching competitive scale is estimated to require $30 to $50 billion over five to seven years, and no venture capital fund, private equity firm, or sovereign wealth fund has attempted that investment in over a decade. Even the $52.7 billion authorized by the U.S. CHIPS and Science Act—roughly the cost of a single competitive DRAM operation—has gone to expanding incumbents' capacity rather than seeding a new competitor; Micron broke ground on its CHIPS-funded megafab in Clay, New York in January 2026, with production not expected before 2030. Leading-edge production also depends on extreme ultraviolet lithography systems sold almost exclusively by ASML, which produces fewer than 100 systems per year, allocated years in advance to Samsung, SK Hynix, Micron, TSMC, and Intel. Each Defendant already holds contractual commitments with ASML for future EUV deliveries, and their increased 2026 capital spending is directed to HBM capacity, advanced packaging, and process-node transitions, not to freeing equipment for any new market participant.

440. Defendants' conduct compounds a regulatory barrier that forecloses the only firms with the scale to attempt entry. U.S. export controls promulgated in October 2022 and tightened in October 2023 cap Chinese manufacturers—principally CXMT and Fujian Jinhua—at older-generation DRAM, and bar them from acquiring the equipment needed to make competing DDR5, LPDDR5X, GDDR7, or HBM. By steering scarce capacity to HBM and advanced nodes that those producers are legally barred

from making, Defendants have concentrated the supply restriction in the very segments insulated from the only potential entrants.

441. The coordinated exit from DDR4 and DDR3 described in Section V.C, *supra*, reinforces that division. Rather than compete on price when CXMT and Fujian Jinhua offered DDR4 at roughly 50% below Defendants' prices, all three moved away from DDR4 at roughly the same time, ceding the low end to the export-controlled Chinese producers while retreating to leading-edge products those producers cannot make. The effect is to confine the only would-be entrants to a shrinking legacy segment and to wall off the advanced segments behind the Fabrication Barrier to Entry.

442. These reinforced barriers are not theoretical. Defendants' coordinated conduct—diverting supracompetitive profits into an ever-widening process lead, claiming the scarce supply of EUV and other critical equipment, capturing advanced-node and HBM capacity, and confining the only export-controlled would-be rivals to the legacy segment they are themselves abandoning—makes the entry that might discipline supracompetitive pricing more remote now than before the conspiracy began. The Fabrication Barrier to Entry described in Section II, *supra*, has not merely persisted; Defendants' current conduct is actively raising it.

E. Diminished Innovation in Commodity DRAM

443. Defendants' coordinated reallocation of research, development, and manufacturing capacity away from commodity DRAM has suppressed innovation in the memory products used by hundreds of millions of consumers. In a competitive market, the record prices documented in Section VI.A, *supra*, would draw investment into faster, denser, more efficient, and cheaper memory. Because all three Defendants simultaneously de-prioritized commodity DRAM, that competitive pressure has not materialized.

444. Defendants' own disclosed priorities show where their investment has gone. Beginning in approximately 2023, all three simultaneously redirected manufacturing capacity and capital expenditure from commodity DRAM to High Bandwidth Memory for AI accelerators. TrendForce reported in November 2025 that total DRAM-sector capital expenditure—about $53.7 billion in 2025, rising to a projected $61.3 billion in 2026—was being directed to "process technology upgrades, higher-layer stacking, hybrid bonding, and high-value products such as HBM," and that this spending was "unlikely

to significantly affect bit output." TrendForce projected that Samsung's 2026 investment centered on 1C-process HBM production, SK Hynix's on HBM4 capacity at its M15x fab, and Micron's on next-generation process nodes and through-silicon-via equipment for HBM packaging, rather than on expanding commodity DRAM for consumer devices.

445. The consumer-facing trajectory over the same period has been regression, not advancement. As prices climbed, notebook brands shifted their product portfolios toward lower-specification 8GB models to manage memory costs, with mid-range shipments "increasingly shifting toward 8GB models" and high-end shipments centered on 16GB configurations, a reduction from prior generations. Rather than competing to put faster or higher-capacity memory into consumer devices, Defendants and the OEMs they supply moved consumers toward less.

446. Defendants also withdrew established commodity products without competitive successors at comparable prices. Samsung ceased DDR3 production entirely in approximately 2024. By 2025, all three Defendants were moving to phase out or de-emphasize mainstream DDR4 despite ongoing demand from the many existing PCs, servers, and embedded systems that still depend on it. As alleged in Section V.C, *supra*, the result is a market inversion in which older, slower DDR4 costs more per gigabyte than the newer DDR5 meant to replace it.

447. Consumers pay historically high prices without receiving improved memory or improved availability. Conventional DRAM prices rose 171.8% year over year as of the third quarter of 2025, 50% in Q4 2025, and rose another approximately 93% to 98% quarter over quarter in the first quarter of 2026. Downstream, Dell raised configured-system prices by amounts ranging from $130 to $765, Framework raised RAM prices by more than 50%, and Raspberry Pi reported that the cost of some parts had more than doubled in a single quarter. These increases bought consumers no additional performance, density, or efficiency; they reflect scarcity rather than advancement.

448. In a competitive market, the largest price signal in the industry's history would have triggered a race to deliver better and cheaper memory. Three years into the price surge, no Defendant has expanded commodity supply or undercut its rivals, and the coordinated diversion of capacity to AI memory is projected to leave only about 30% of global memory output for the consumer, PC, smartphone, automotive, and other segments that serve billions of devices.

F. Distortion of Competitive Dynamics

449. Defendants have replaced competition with coordination: identical pricing, identical supply decisions, parallel customer vetting, and similar market-exit strategies. The parallel customer vetting alleged above, considered together with Defendants' other parallel conduct, demonstrate Defendants were coordinating in monitoring and managing demand during the ongoing shortage. Samsung's and SK Hynix's refusal to enter two- to three-year long-term agreements with major server-DRAM customers, described in Section V.D, *supra*, maximizes their pricing power at the direct expense of customer planning and budgeting.

G. Injury to Plaintiffs and the Class

450. Plaintiffs and members of the Class purchased conventional DRAM and conventional DRAM-containing products at prices artificially inflated by Defendants' coordinated supply restriction. The overcharge was passed through the distribution chain to indirect purchasers, as illustrated by the price increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers documented above.

451. Plaintiffs and the Class have suffered antitrust injury. Absent the conspiracy, commodity DRAM supply would have expanded in response to rising prices, producing a competitive equilibrium. Instead, Defendants' coordinated refusal to expand has maintained supracompetitive prices.

452. Dell, CyberPowerPC, Framework, and Minisforum, as examples, each publicly attributed their price increases to DRAM costs, confirming that supracompetitive conventional DRAM pricing was passed through to end consumers. Dell cited "memory prices" in announcing 10-30% PC price hikes. CyberPowerPC cited a "500% increase in memory cost" when raising system prices in the U.S. and U.K. Framework's CEO explained the company's 50% RAM price increase as a direct consequence of the memory market. Minisforum raised prices on all products containing DRAM or storage.

453. Every consumer who purchased DRAM modules, a smartphone, laptop, desktop PC, gaming console, or server during the Class Period paid an overcharge traceable to Defendants' coordinated supply restriction. Because conventional DRAM is a component in virtually all computing devices, and because Defendants control more than 91% of the market, no consumer could avoid the price effects of the conspiracy.

CLASS ACTION ALLEGATIONS

454. Plaintiffs bring this action on behalf of themselves and all others similarly situated pursuant to Rules 23(a), 23(b)(2), and 23(b)(3) of the Federal Rules of Civil Procedure.

455. Defendants' anticompetitive conduct was uniform in nature and effect: Defendants imposed the same coordinated supply restrictions, the same capacity reallocation decisions, the same product discontinuations, and the same customer-vetting procedures across all conventional DRAM products sold to all purchasers. Defendants did not materially differentiate in their actions or inactions toward members of the Classes.

456. Each class member was subject to the same artificially constrained supply and the same supracompetitive pricing, and each was injured in the same manner—by paying artificially inflated prices for conventional DRAM and conventional DRAM-containing products as a direct result of Defendants' coordinated conduct.

457. This action is appropriate for class treatment because Defendants' anticompetitive conduct was directed at, and had a common effect upon, all purchasers of conventional DRAM and conventional DRAM-containing products. The questions of law and fact common to all Class members predominate over any questions affecting only individual members, and a class action is superior to other available methods for the fair and efficient adjudication of this controversy.

The Classes

458. Plaintiffs seek to represent the following classes:

> **Nationwide Injunctive Relief Class:** All persons and entities in the United States who indirectly purchased conventional DRAM products (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM conforming to JEDEC specifications, but excluding HBM) manufactured by one or more Defendants, or electronic devices containing such DRAM, during the period beginning October 26, 2022, through the present (the "Class Period").

459. Excluded from the Nationwide Injunctive Relief Class are Defendants and their parents, subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members and associated court staff assigned to this case.

> **California Damages Class:** All persons and entities in the State of California who indirectly purchased conventional DRAM products (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM conforming to JEDEC specifications, but excluding HBM) manufactured by one or more Defendants, or electronic devices containing such DRAM, during the Class Period.

460. Excluded from the California Damages Class are Defendants and their parents, subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members and associated court staff assigned to this case.

> **Florida Damages Class:** All persons and entities in the State of Florida who indirectly purchased conventional DRAM products (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM conforming to JEDEC specifications, but excluding HBM) manufactured by one or more Defendants, or electronic devices containing such DRAM, during the Class Period.

461. Excluded from the Florida Damages Class are Defendants and their parents, subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members and associated court staff assigned to this case.

> **Minnesota Damages Class:** All persons and entities in the State of Minnesota who indirectly purchased conventional DRAM products (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM conforming to JEDEC specifications, but excluding HBM) manufactured by one or more Defendants, or electronic devices containing such DRAM, during the Class Period.

462. Excluded from the Minnesota Damages Class are Defendants and their parents, subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members and associated court staff assigned to this case.

> **New York Damages Class:** All persons and entities in the State of New York who indirectly purchased conventional DRAM products (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM conforming to JEDEC specifications, but excluding HBM) manufactured

by one or more Defendants, or electronic devices containing such DRAM, during the Class Period.

463. Excluded from the New York Damages Class are Defendants and their parents, subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members and associated court staff assigned to this case.

Wisconsin Damages Class: All persons and entities in the State of Wisconsin who indirectly purchased conventional DRAM products (including DDR3, DDR4, DDR5, LPDDR5X, GDDR6, GDDR7, and all other DRAM conforming to JEDEC specifications, but excluding HBM) manufactured by one or more Defendants, or electronic devices containing such DRAM, during the Class Period.

464. Excluded from the Wisconsin Damages Class are Defendants and their parents, subsidiaries, affiliates, employees, officers, directors, legal representatives, heirs, successors, and wholly or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members and associated court staff assigned to this case.

465. The Nationwide Injunctive Relief Class, California Damages Class, Florida Damages Class, Minnesota Damages Class, New York Damages Class, and Wisconsin Damages Class are referred to collectively as the "Classes."

Numerosity and Ascertainability

466. The members of the Classes are so numerous that joinder of all members is impracticable. Hundreds of millions of persons in the United States purchased conventional DRAM-containing electronic devices during the Class Period. Over 240 million personal computers and over 1.2 billion smartphones shipped worldwide in 2024 alone, each containing conventional DRAM manufactured by one or more Defendants.

467. The Classes are ascertainable. The class definitions identify groups of unnamed plaintiffs by describing a set of common characteristics sufficient to allow a member of that group to self-identify as having a right to recover based on the description. Other than by direct notice, proper and sufficient

notice of this action may be provided to the class members through notice disseminated by electronic means, through broadcast media, and published in newspapers or other publications.

468. There is a well-defined community of interest in questions of law and fact involving and affecting all members of the Classes. Common questions of law and fact are substantially similar and predominate over questions that may affect only individual class members. This action is amenable to a class-wide calculation of damages, or the establishment of fair and equitable formulae for determining and allocating damages, through expert testimony applicable to anyone in the Classes.

Common Questions of Law and Fact

469. Common questions of law and fact exist as to all members of the Classes and predominate over any questions solely affecting individual members of the Classes, including:

i. Whether Defendants entered into a contract, combination, or conspiracy to restrict the supply of conventional DRAM;

ii. Whether Defendants' coordinated supply restriction is per se anticompetitive and unlawful, or in the alternative, whether it violates the rule of reason because the conduct lacks procompetitive benefits or the anticompetitive effects of the conduct outweigh its procompetitive benefits;

iii. Whether Defendants' conduct artificially inflated conventional DRAM prices during the Class Period;

iv. Whether the overcharge resulting from Defendants' conspiracy was passed through to indirect purchasers, including Plaintiffs and the Classes;

v. Whether the members of the Classes are entitled to trebled damages, attorneys' fees, costs, and other monetary relief under the Cartwright Act;

vi. Whether the members of the Nationwide Injunctive Relief Class are entitled to injunctive relief under Section 16 of the Clayton Act, 15 U.S.C. § 26;

vii. Whether Defendants should be enjoined from coordinating production levels, capacity allocation, and product discontinuation in the conventional DRAM market, and from the parallel customer vetting alleged as part of that coordinated course of conduct;

viii. Whether Defendants' coordinated conduct has unlawfully strengthened the barriers to entry in the conventional DRAM market;

ix. Whether Defendants' coordinated conduct has reduced consumer choice and diminished innovation in the conventional DRAM market;

x. The appropriate measure of damages and the methodology for calculating the overcharge attributable to Defendants' conspiracy.

Typicality

470. Plaintiffs' claims are typical of the claims of the Classes. Plaintiffs and all Class members were subjected to the same anticompetitive conduct and were injured in the same manner—by paying artificially inflated prices for conventional DRAM and conventional DRAM-containing products during the Class Period.

471. Plaintiffs' claims arise from the same course of conduct and are based on the same legal theories as the claims of the Classes.

Adequate Representation

472. Plaintiffs will fairly and adequately protect the interests of the Class members. Plaintiffs' interests are coincident with, and not antagonistic to, those of the Classes.

473. Plaintiffs have retained counsel experienced in the prosecution of antitrust class action litigation who will adequately represent the interests of the Classes. Plaintiffs and their counsel intend to prosecute this action vigorously and have the financial resources to do so. Neither Plaintiffs nor their counsel have interests adverse to those of the Classes.

Superiority

474. A class action is superior to other available methods for the fair and efficient adjudication of this controversy. The prosecution of separate actions by individual Class members would create the risk of inconsistent or varying adjudications, establishing incompatible standards of conduct for Defendants.

475. Class treatment is appropriate under Rule 23(b)(2) because Defendants have acted or refused to act on grounds that apply generally to the Nationwide Injunctive Relief Class, thereby making appropriate final injunctive and/or corresponding declaratory relief with respect to the Class as a whole.

476. Class treatment is also appropriate under Rule 23(b)(3) because the questions of law and fact common to the members of the Classes predominate over any questions affecting only individual members.

477. The damages suffered by individual Class members are relatively small compared to the burden and expense that would be required to individually litigate their claims against Defendants. It would be virtually impossible for members of the Classes individually to redress effectively the wrongs done to them, such that most or all class members would have no rational economic interest in individually controlling the prosecution of specific actions.

478. Even if Class members could afford such individualized litigation, the court system could not. Individualized litigation would create the danger of inconsistent or contradictory judgments arising from the same set of facts. Individualized litigation would also increase the delay and expense to all parties and to the court system from the issues raised by this action. Class adjudication conserves judicial resources, protects class members' rights, and is superior to piecemeal litigation.

479. There are no difficulties likely to be encountered in the management of this action that would preclude its maintenance as a class action. Rule 23 provides the Court with authority and flexibility to maximize the efficiencies and benefits of the class mechanism and reduce management challenges. The Court may, on motion of Plaintiffs or on its own determination, certify nationwide and/or statewide classes for claims sharing common legal questions; utilize the provisions of Rule 23(c)(4) to certify particular claims, issues, or common questions of fact or law for class-wide adjudication; and utilize Rule 23(c)(5) to divide any class into subclasses.

Reallegation and Incorporation by Reference

480. Plaintiffs reallege and incorporate by reference all the preceding paragraphs and allegations of this Complaint, as though fully set forth in each of the following Claims for Relief asserted on behalf of the Classes.

CLAIMS FOR RELIEF

COUNT I
Violation of Section 1 of the Sherman Act, 15 U.S.C. § 1
(On Behalf of Plaintiffs and the Nationwide Injunctive Relief Class)
(Injunctive and Equitable Relief Only)

481. Plaintiffs bring this count against all Defendants on behalf of themselves and the putative Class. Plaintiffs incorporate by reference all preceding paragraphs as though set forth fully herein.

482. Beginning in approximately October 2022 and continuing to the present, Defendants Samsung, SK Hynix, and Micron entered into and have maintained a continuing agreement, combination, or conspiracy in restraint of trade in the market for conventional DRAM, in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1.

483. Defendants' conspiracy has consisted of a coordinated scheme to restrict the supply of conventional DRAM, including: (a) simultaneous production cuts by all three Defendants beginning in October 2022; (b) the coordinated reallocation of manufacturing capacity from commodity DRAM to High Bandwidth Memory; (c) the coordinated exit from DDR4 and DDR3 production despite ongoing demand; (d) the unanimous refusal to expand conventional DRAM production despite an approximately 697% increase in contract prices; (e) the reported Stargate supply commitment covering up to approximately 40% of global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j) sacrificing short-term profits to maintain the supply restrictions.

484. Conventional DRAM is manufactured, distributed, and sold in a continuous and uninterrupted flow of interstate and international commerce. Defendants manufacture conventional DRAM in fabrication facilities located in South Korea, the United States, Japan, China, and Taiwan. They sell conventional DRAM products to customers located throughout the United States and the world, including OEMs, distributors, and module manufacturers. Conventional DRAM products manufactured by Defendants are incorporated into computers, smartphones, servers, automobiles, gaming consoles, and other electronic devices that are sold and shipped across state lines and international borders. Defendants'

conspiracy has had a direct, substantial, and reasonably foreseeable effect on interstate and international commerce within the United States.

485. Each Defendant, through its U.S. subsidiary or directly, transacts business within the United States and within this District. Defendants maintain sales offices, engineering facilities, and distribution channels in the United States through which they sell conventional DRAM into the stream of interstate commerce. Samsung Semiconductor, Inc. is headquartered in San Jose, California. SK Hynix America Inc. is headquartered in San Jose, California. Micron Technology, Inc. is headquartered in Boise, Idaho and maintains substantial operations throughout the United States. The volume of interstate commerce affected by Defendants' conspiracy is substantial, exceeding tens of billions of dollars annually.

486. Defendants' conspiracy constitutes a *per se* violation of Section 1 of the Sherman Act. An agreement among horizontal competitors to restrict output is a naked restraint on trade that is *per se* unlawful. The conspiracy here is an agreement among the only three significant producers of conventional DRAM—a commodity product with no substitutes—to restrict production, exit product segments, and refrain from expanding output. This is the functional equivalent of a production quota.

487. The *per se* characterization is further supported by the fact that the same firms previously took part in a criminal conspiracy to fix the price of DRAM, within the past two decades. Samsung and the predecessor of SK Hynix pleaded guilty, and Micron admitted its involvement and cooperated with the Department of Justice under its Corporate Leniency Policy. The Department of Justice secured guilty pleas and criminal fines totaling more than $730 million. Samsung alone paid a $300 million criminal fine. Samsung executives were imprisoned. The current conspiracy is a continuation of Defendants' demonstrated propensity to coordinate on DRAM supply and pricing.

488. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the rule of reason. The anticompetitive effects of Defendants' conduct are severe and well-documented: (a) conventional DRAM contract prices have increased by approximately 697% since Q3 2024, with retail price increases nearing 500%; (b) artificial shortages have produced rationing in Japan, Taiwan, and the United States—a phenomenon virtually unknown in the DRAM market outside of natural disaster; (c) consumer choice has been reduced by Micron's exit from the consumer market and the coordinated

discontinuation of DDR4 and DDR3 products; (d) innovation in commodity DRAM has been diminished by the coordinated reallocation of R&D spending to HBM; (e) barriers to entry have been strengthened by the reported Stargate commitment of up to approximately 40% of global DRAM output to a single customer; and (f) competitive dynamics have been distorted by the simultaneous adoption of identical customer policing, identical rejection of long-term agreements, and identical pricing behavior.

489. Defendants cannot demonstrate any procompetitive justification for their coordinated conduct. AI demand is an independent market development, not a procompetitive benefit of the conspiracy. Defendants exploited it as a pretext to coordinate the restriction of commodity DRAM supply. The conspiracy produces no efficiency, no innovation, no consumer benefit, and no competitive improvement—only higher prices, less supply, and greater market power for Defendants. Any purported justification is pretextual and is, in any event, far outweighed by the anticompetitive harm.

490. Plaintiffs and the Class have been injured by Defendants' violation of Section 1 of the Sherman Act. Plaintiffs and the Class have paid supracompetitive prices for conventional DRAM and conventional DRAM-containing products as a direct result of Defendants' conspiracy to restrict commodity conventional DRAM supply.

491. The overcharge has been passed through the distribution chain—from Defendants to direct purchasers (OEMs, distributors, and module manufacturers) and from direct purchasers to indirect purchasers (retailers, system builders, and consumers)—as confirmed by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers. Plaintiffs and the Class have suffered and will continue to suffer injury of the type the antitrust laws were intended to prevent.

492. Plaintiffs and the Class seek injunctive relief under Section 16 of the Clayton Act, 15 U.S.C. § 26, requiring Defendants to cease their coordinated supply restriction and restore competitive conditions in the conventional DRAM market, including: (a) enjoining Defendants from coordinating production levels, capacity allocation, or product discontinuation; and (b) requiring Defendants to maintain or expand conventional DRAM production capacity commensurate with demand.

COUNT II
Violation of the Cartwright Act
(CAL. BUS. & PROF. CODE § 16720 *et seq.*)
(On Behalf of Plaintiffs and the California Damages Class)

493. Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa bring this count against all Defendants on behalf of themselves and the putative California Damages Class. Plaintiffs incorporate by reference all preceding paragraphs as though set forth fully herein.

494. Defendants Samsung, SK Hynix, and Micron have entered into and maintained a combination or conspiracy in restraint of trade in the market for conventional DRAM, constituting a trust within the meaning of California Business and Professions Code §§ 16720, 16726, and 16727.

495. Defendants' conspiracy has consisted of a coordinated scheme to restrict the supply of conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j) sacrificing short-term profits to maintain the supply restrictions.

496. Conventional DRAM products manufactured by Defendants are sold to purchasers located in California, including OEMs, distributors, retailers, system builders, and consumers. Conventional DRAM products and conventional DRAM-containing devices—including computers, smartphones, servers, and other electronic products—are sold at retail throughout the State of California. California is one of the largest markets for conventional DRAM and conventional DRAM-containing devices in the United States.

497. Defendants' conspiracy constitutes a *per se* violation of the Cartwright Act. An agreement among horizontal competitors to restrict output is *per se* unlawful under the Cartwright Act, which is at least as broad as the Sherman Act in prohibiting restraints of trade. An output restriction agreement among

the three firms that collectively control over 91% of global DRAM production is a naked restraint on trade that admits of no procompetitive justification.

498. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the rule of reason. The anticompetitive effects of Defendants' conduct are severe: supracompetitive prices (contract prices up approximately 697%, retail prices up 100% to 500%); artificial shortages producing rationing in Japan, Taiwan, and the United States; reduced consumer choice through the elimination of the Crucial consumer brand and the accelerated phase-out of DDR4; diminished innovation in commodity DRAM; strengthened barriers to entry through the reported Stargate supply commitment; and distortion of competitive dynamics through identical customer policing, identical rejection of long-term agreements, and identical pricing behavior. These anticompetitive effects far outweigh any purported procompetitive justification. Defendants cannot identify a single procompetitive benefit of their coordinated conduct.

499. California's Cartwright Act permits indirect purchasers to recover damages. CAL. BUS. & PROF. CODE § 16750(a). Unlike the Sherman Act, which limits damages recovery to direct purchasers, the Cartwright Act provides a damages remedy to all purchasers injured by the conspiracy, including indirect purchasers such as Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class.

500. Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class have been injured by Defendants' violation of the Cartwright Act. During the Class Period, Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class purchased conventional DRAM products and conventional DRAM-containing electronic devices at prices that were artificially inflated as a direct result of Defendants' coordinated supply restriction. The overcharge was passed through the distribution chain to indirect purchasers, as confirmed by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers. Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class have paid and continue to pay supracompetitive prices for conventional DRAM and conventional DRAM-containing products.

501. As a result of Defendants' violations of the Cartwright Act, Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class are entitled to recover treble damages, together with the costs of suit, including reasonable attorneys' fees. CAL. BUS. & PROF. CODE § 16750(a). Damages will be established through common proof, including economic modeling of the overcharge using before-and-after, yardstick, or econometric methods. Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class are also entitled to prejudgment interest.

502. Plaintiffs Garciaguirre, Burnett, Flores, Gurrola, Barclift, Papulis, and Ochoa and the California Damages Class also seek injunctive relief under the Cartwright Act, CAL. BUS. & PROF. CODE § 16750(a), and CALIFORNIA'S UNFAIR COMPETITION LAW, CAL. BUS. & PROF. CODE § 17203, to prevent Defendants from continuing their unlawful conduct and to restore competitive conditions in the conventional DRAM market.

COUNT III
Violation of the Florida Deceptive and Unfair Trade Practices Act
(FLA. STAT. § 501.201, *et seq.*)
(On Behalf of Plaintiffs and the Florida Damages Class)

503. Plaintiffs Henning, Troy's Computers, and My Florida PC bring this count against all Defendants on behalf of themselves and the putative Florida Damages Class. Plaintiffs incorporate by reference all preceding paragraphs as though set forth fully herein.

504. FDUPTPA, Fla. Stat. § 501.201, *et seq.* generally prohibits "unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices in the conduct of any trade or commerce," including practices in restraint of trade. FLA. STAT. § 501.204(1).

505. The primary policy of the FDUTPA is "[t]o protect the consuming public and legitimate business enterprises from those who engage in unfair methods of competition, or unconscionable, deceptive, or unfair acts or practices in the conduct of any trade or commerce." FLA. STAT. § 501.202(2).

506. A claim for damages under the FDUTPA has three elements: (1) a prohibited practice; (2) causation; and (3) actual damages.

507. Florida Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida Damages Class purchased conventional DRAM products within the State of Florida during the Class Period.

508. Under Florida law, indirect purchasers have standing to maintain an action under the FDUTPA based on the facts alleged in this Complaint. *See* FLA. STAT. § 501.211(1) ("anyone aggrieved by a violation of this [statute] may bring an action . . . ."). Unlike the Sherman Act, which limits damages recovery to direct purchasers, the FDUTPA provides a damages remedy to all purchasers injured by the conspiracy, including indirect purchasers such as Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida Damages Class.

509. But for Defendants' conduct set forth in this Complaint, the price of conventional DRAM products would have been lower, in an amount to be determined at trial.

510. Defendants Samsung, SK Hynix, and Micron have entered into and maintained a combination or conspiracy between two or more persons in restraint of, or to monopolize, trade or commerce in the market for conventional DRAM, a substantial part of which occurred within Florida.

511. Defendants' conspiracy has consisted of a coordinated scheme to restrict the supply of conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j) sacrificing short-term profits to maintain the supply restrictions.

512. Conventional DRAM products manufactured by Defendants are sold to purchasers located in Florida, including OEMs, distributors, retailers, system builders, and consumers. Conventional DRAM products and conventional DRAM-containing devices—including computers, smartphones, servers, and other electronic products—are sold at retail throughout the State of Florida.

513. Defendants established, maintained, or used a monopoly, or attempted to establish a monopoly, of trade or commerce in the conventional DRAM market for the purpose of excluding competition or controlling, fixing, or maintaining prices in Florida at a higher level than the competitive market level, beginning at least as early as the beginning of the Class Period and continuing through the date of this filing.

514. Accordingly, Defendants' conduct was an unfair method of competition, and an unfair or deceptive act or practice within the conduct of commerce within the State of Florida.

515. Defendants' unlawful conduct substantially affected Florida's trade and commerce.

516. As a direct and proximate cause of Defendants' unlawful conduct, Florida Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida Damages Class have been injured during the Class Period in their business or property by virtue of overcharges for conventional DRAM products—and are threatened with further injury. Specifically, Florida Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida Damages Class purchased conventional DRAM products and conventional DRAM-containing electronic devices at prices that were artificially inflated as a direct result of Defendants' coordinated supply restriction. The overcharge was passed through the distribution chain to indirect purchasers, as confirmed by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers. Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida Damages Class have paid and continue to pay supracompetitive prices for conventional DRAM and conventional DRAM-containing products.

517. As a result of Defendants' violations of the FDUTPA, Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida Damages Class are entitled to seek all forms of relief, including actual damages, declaratory judgment, and reasonable attorneys' fees and costs pursuant to FLA. STAT. § 501.211. Damages will be established through common proof, including economic modeling of the overcharge using before-and-after, yardstick, or econometric methods. Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida Damages Class are also entitled to prejudgment interest.

518. Plaintiffs Henning, Troy's Computers, and My Florida PC and the Florida Damages Class also seek injunctive relief under FLA. STAT. § 501.208 to prevent Defendants from continuing their unlawful conduct and to restore competitive conditions in the conventional DRAM market.

COUNT IV
Violation of the Minnesota Antitrust Law
(MINN. STAT. § 325D.49, *et seq*.)
(On Behalf of Plaintiffs and the Minnesota Damages Class)

519. Plaintiff Graber bring this count against all Defendants on behalf of himself and the putative Minnesota Damages Class. Plaintiffs incorporate by reference all preceding paragraphs as though set forth fully herein.

520. The Minnesota Antitrust Law makes unlawful any "contract, combination, or conspiracy between two or more persons in unreasonable restraint of trade or commerce[.]" MINN. STAT. § 325D.51.

521. The Minnesota Antitrust Law also makes unlawful "[t]he establishment, maintenance, or use of, or any attempt to establish, maintain, or use monopoly power over any part of trade or commerce by any person or persons for the purpose of affecting competition or controlling, fixing, or maintaining prices[.]" MINN. STAT. § 325D.52.

522. Defendants Samsung, SK Hynix, and Micron established or maintained a monopoly over the trade or commerce of conventional DRAM products for the purpose of affecting competition or fixing prices in the State of Minnesota, in violation of Minnesota Antitrust Law § 325D.52.

523. Defendants Samsung, SK Hynix, and Micron have established or maintained this monopoly within the State of Minnesota by entering into and maintaining a combination or conspiracy in the unreasonable restraint of trade or commerce in the market for conventional DRAM within the meaning of Minnesota Antitrust Law §§ 325D.50 and 325D.51.

524. Conventional DRAM products manufactured by Defendants are sold to purchasers located in Minnesota, including OEMs, distributors, retailers, system builders, and consumers. Conventional DRAM products and conventional DRAM-containing devices—including computers, smartphones, servers, and other electronic products—are sold at retail throughout the State of Minnesota.

525. Defendants' conspiracy has consisted of a coordinated scheme to restrict the supply of conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous

production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j) sacrificing short-term profits to maintain the supply restrictions.

526. Defendants' conspiracy constitutes a *per se* violation of the Minnesota Antitrust Law. An agreement among horizontal competitors to restrict output is *per se* unlawful under the Minnesota Antitrust Law. An output restriction agreement among the three firms that collectively control over 91% of global DRAM production is a naked restraint on trade that admits of no procompetitive justification. Defendants' conspiracy also constitutes a *per se* violation of the Minnesota Antitrust Law because it constitutes "[a] contract, combination, or conspiracy between two or more persons in competition" that is "for the purpose or with the effect of affecting, fixing, controlling or maintaining the market price, rate, or fee of any commodity or service," MINN. STAT. § 325D.53, subd. 1(1)(a), and that is also "affecting, fixing, controlling, maintaining, limiting, or discontinuing the production, manufacture, . . . sale or supply of any commodity . . . for the purpose or with the effect of affecting, fixing, controlling, or maintaining the market price, rate, or fee of the commodity[,]" MINN. STAT. § 325D.53, subd. 1(1)(b).

527. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the rule of reason. The anticompetitive effects of Defendants' conduct are severe: supracompetitive prices (contract prices up approximately 697%, retail prices up 100% to 500%); artificial shortages producing rationing in Japan, Taiwan, and the United States; reduced consumer choice through the elimination of the Crucial consumer brand and the accelerated phase-out of DDR4; diminished innovation in conventional DRAM; strengthened barriers to entry through the reported Stargate supply commitment; and distortion of competitive dynamics through identical customer policing, identical rejection of long-term agreements, and identical pricing behavior. These anticompetitive effects far outweigh any purported procompetitive justification. Defendants cannot identify a single procompetitive benefit of their coordinated conduct.

528. Under Minnesota law, indirect purchasers have standing to maintain an action under the Minnesota Antitrust Law based on the facts alleged in this Complaint. *See* MINN. STAT. § 325D.57. Unlike the Sherman Act, which limits damages recovery to direct purchasers, the Minnesota Antitrust Law provides a damages remedy to all purchasers injured by the conspiracy, including indirect purchasers such as Plaintiff Graber and the Minnesota Damages Class.

529. Plaintiff Graber and the Minnesota Damages Class have been injured by Defendants' violation of the Minnesota Antitrust Law. During the Class Period, Plaintiff Graber and the Minnesota Damages Class purchased conventional DRAM products and conventional DRAM-containing electronic devices at prices that were artificially inflated as a direct result of Defendants' coordinated supply restriction. The overcharge was passed through the distribution chain to indirect purchasers, as confirmed by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers. Plaintiff Graber and the Minnesota Damages Class have paid and continue to pay supracompetitive prices for conventional DRAM and conventional DRAM-containing products.

530. As a result of Defendants' violations of the Minnesota Antitrust Law, Plaintiff Graber and the Minnesota Damages Class are entitled to recover treble damages, together with the costs and disbursements, including reasonable attorneys' fees. MINN. STAT. § 325D.57. Damages will be established through common proof, including economic modeling of the overcharge using before-and-after, yardstick, or econometric methods. Plaintiffs are also entitled to prejudgment interest.

COUNT V
Violation of the New York Donnelly Act
(N.Y. GEN. BUS. LAW § 340, *et seq*.)
(On Behalf of Plaintiffs and the New York Damages Class)

531. Plaintiffs Danson, Prineas, and Yu bring this count against all Defendants on behalf of themselves and the putative New York Damages Class. Plaintiffs incorporate by reference all preceding paragraphs as though set forth fully herein.

532. The New York Donnelly Act prohibits monopolies and contracts or agreements in restraint of trade, with the policy of encouraging competition or the free exercise of any activity in the conduct of any business, trade, or commerce in New York. *See* N.Y. Gen. Bus. Law § 340(1).

533. Defendants Samsung, SK Hynix, and Micron established or maintained a monopoly within the intrastate commerce of New York for the trade or commerce of conventional DRAM products and restrained competition in the free exercise of the conduct of the business of conventional DRAM products within the intrastate commerce of New York, in violation of N.Y. GEN. BUS. LAW § 340, *et seq.*

534. Defendants have established or maintained a monopoly within the intrastate commerce of New York through a coordinated agreement, arrangement, or combination to restrict the supply of conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer vetting and order policing; (h) the public signaling of coordinated conduct through earnings calls and investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j) sacrificing short-term profits to maintain the supply restrictions.

535. Conventional DRAM products manufactured by Defendants are sold to purchasers located in New York, including OEMs, distributors, retailers, system builders, and consumers. Conventional DRAM products and conventional DRAM-containing devices—including computers, smartphones, servers, and other electronic products—are sold at retail throughout the State of New York. New York is one of the largest markets for conventional DRAM and conventional DRAM-containing devices in the United States.

536. Defendants' conspiracy constitutes a *per se* violation of the Donnelly Act. An agreement among horizontal competitors to restrict output is *per se* unlawful under the Donnelly Act. An output restriction agreement among the three firms that collectively control over 91% of global DRAM production is a naked restraint on trade that admits of no procompetitive justification.

537. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the rule of reason. The anticompetitive effects of Defendants' conduct are severe: supracompetitive prices (conventional DRAM prices up approximately 697%, retail prices up 100% to 500%); artificial shortages producing rationing in Japan, Taiwan, and the United States; reduced consumer choice through the

elimination of the Crucial consumer brand and the accelerated phase-out of DDR4; diminished innovation in conventional DRAM; strengthened barriers to entry through the reported Stargate supply commitment; and distortion of competitive dynamics through identical customer policing, identical rejection of long-term agreements, and identical pricing behavior. These anticompetitive effects far outweigh any purported procompetitive justification. Defendants cannot identify a single procompetitive benefit of their coordinated conduct.

538. Under New York law, indirect purchasers have standing to maintain an action under the New York Donnelly Act based on the facts alleged in this Complaint. *See* N.Y. GEN. BUS. LAW § 340(6). Unlike the Sherman Act, which limits damages recovery to direct purchasers, the Donnelly Act provides a damages remedy to all purchasers injured by the conspiracy, including indirect purchasers such as Plaintiffs Danson, Prineas, and Yu and the New York Damages Class.

539. New York Plaintiffs Danson, Prineas, and Yu and the New York Damages Class were and continue to be injured with respect to purchases of conventional DRAM products in New York. During the Class Period, Plaintiffs Danson, Prineas, and Yu and the New York Damages Class purchased conventional DRAM products and conventional DRAM-containing electronic devices at prices that were artificially inflated as a direct result of Defendants' coordinated supply restriction. The overcharge was passed through the distribution chain to indirect purchasers, as confirmed by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers. Plaintiffs Danson, Prineas, and Yu and the New York Damages Class have paid and continue to pay supracompetitive prices for conventional DRAM and conventional DRAM-containing products.

540. As a result of Defendants' violations of the Donnelly Act, Plaintiffs Danson, Prineas, and Yu and the New York Damages Class and are entitled to all forms of relief, including actual damages, treble damages, costs not exceeding $10,000, reasonable attorneys' fees, and all relief available under N.Y. GEN. BUS. LAW § 340, *et seq.* Damages will be established through common proof, including economic modeling of the overcharge using before-and-after, yardstick, or econometric methods. Plaintiffs are also entitled to prejudgment interest.

541. Pursuant to New York General Business Law § 340(5), counsel for New York Plaintiffs Danson, Prineas, and Yu has sent letters by certified mail, return receipt requested, to the Attorney

General of New York, informing the Attorney General of the existence of this Class Action Complaint, identifying the relevant state antitrust provisions, and enclosing a copy of the original complaint filed by New York Plaintiffs Danson, Prineas, and Yu.

COUNT VI
Violation of the Wisconsin Antitrust Act
(WIS. STAT. § 133.01, *et seq*.)
(On Behalf of Plaintiffs and the Wisconsin Damages Class)

542. Plaintiff Barber brings this count against all Defendants on behalf of himself and the putative Wisconsin Damages Class. Plaintiffs incorporate by reference all preceding paragraphs as though set forth fully herein.

543. The Wisconsin Antitrust Act prohibits "[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce" and penalizes "[e]very person who monopolizes, or attempts to monopolize, or combines or conspires with any other person or persons to monopolize any part of trade or commerce[.]" WIS. STAT. § 133.03(1), (2).

544. The intent of the Wisconsin Antitrust Act is "to safeguard the public against the creation or perpetuation of monopolies and to foster and encourage competition by prohibiting unfair and discriminatory business practices which destroy or hamper competition." WIS. STAT. § 133.01.

545. Defendants Samsung, SK Hynix, and Micron are all "person[s]" within the meaning of Wisconsin Antitrust Act § 133.02(3).

546. Defendants Samsung, SK Hynix, and Micron have entered into and maintained a combination in the form of trust or conspiracy in restraint of trade or commerce in the market for conventional DRAM within the meaning of Wisconsins Antitrust Act § 133.03(1).

547. Defendants have established or maintained a monopoly within the intrastate commerce of Wisconsin through a combination or conspiracy to restrict the supply of conventional DRAM, as set forth in detail in Section V of this Complaint, including: (a) simultaneous production cuts; (b) coordinated reallocation of manufacturing capacity to HBM; (c) coordinated exit from DDR4 and DDR3 production; (d) unanimous refusal to expand conventional DRAM production despite record prices; (e) the reported Stargate supply commitment covering up to approximately 40% of global DRAM output to a single customer; (f) Micron's shuttering of Crucial; (g) coordinated customer vetting and order policing; (h) the

public signaling of coordinated conduct through earnings calls and investor communications; and (i) abandonment of each Defendants' competitive positioning; and (j) sacrificing short-term profits to maintain the supply restrictions.

548. Conventional DRAM products manufactured by Defendants are sold to purchasers located in Wisconsin, including OEMs, distributors, retailers, system builders, and consumers. Conventional DRAM products and conventional DRAM-containing devices—including computers, smartphones, servers, and other electronic products—are sold at retail throughout the State of Wisconsin.

549. Defendants' conspiracy constitutes a *per se* violation of the Wisconsin Antitrust Act. An agreement among horizontal competitors to restrict output is *per se* unlawful under the Wisconsin Antitrust Act. An output restriction agreement among the three firms that collectively control over 91% of global DRAM production is a naked restraint on trade that admits of no procompetitive justification.

550. In the alternative, Defendants' conspiracy is an unreasonable restraint of trade under the rule of reason. The anticompetitive effects of Defendants' conduct are severe: supracompetitive prices (conventional DRAM prices up approximately 697%, retail prices up 100% to 500%); artificial shortages producing rationing in Japan, Taiwan, and the United States; reduced consumer choice through the elimination of the Crucial consumer brand and the accelerated phase-out of DDR4; diminished innovation in conventional DRAM; strengthened barriers to entry through the reported Stargate supply commitment; and distortion of competitive dynamics through identical customer policing, identical rejection of long-term agreements, and identical pricing behavior. These anticompetitive effects far outweigh any purported procompetitive justification. Defendants cannot identify a single procompetitive benefit of their coordinated conduct.

551. The Wisconsin Antitrust Act permits indirect purchasers to recover damages. WIS. STAT. § 133.18. Unlike the Sherman Act, which limits damages recovery to direct purchasers, the Wisconsin Antitrust Act provides a damages remedy to all purchasers injured by the conspiracy, including indirect purchasers such as Plaintiff Barber and the Wisconsin Damages Class.

552. Plaintiff Barber and the Wisconsin Damages Class have been injured by Defendants' violation of the Wisconsin Antitrust Act. During the Class Period, Plaintiff Barber and the Wisconsin Damages Class purchased conventional DRAM products and conventional DRAM-containing electronic

devices at prices that were artificially inflated as a direct result of Defendants' coordinated supply restriction. The overcharge was passed through the distribution chain to indirect purchasers, as confirmed by the contemporaneous price increase announcements of Dell, CyberPowerPC, Minisforum, and other downstream purchasers. Plaintiff Barber and the Wisconsin Damages Class have paid and continue to pay supracompetitive prices for conventional DRAM and conventional DRAM-containing products.

553. As a result of Defendants' violations of the Wisconsin Antitrust Act, Plaintiff Barber and the Wisconsin Damages Class are entitled to recover treble damages, together with the costs of suit, including reasonable attorneys' fees. WIS. STAT. § 133.18. Damages will be established through common proof, including economic modeling of the overcharge using before-and-after, yardstick, or econometric methods. Plaintiffs are also entitled to prejudgment interest.

554. Plaintiff Barber and the Wisconsin Damages Class also seek injunctive relief under Wisconsin Antitrust Act § 133.16 to prevent Defendants from continuing their unlawful conduct and to restore competitive conditions in the conventional DRAM market.

555. Pursuant to Wisconsin Antitrust Act § 133.16, counsel for Wisconsin Plaintiff Barber and the Wisconsin Damages Class has served copies of all pleadings filed under this section upon the Wisconsin Department of Justice.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs, on behalf of themselves and the proposed Classes, respectfully request that this Court enter judgment against Defendants and grant the following relief:

A. Determine that this action may be maintained as a class action pursuant to Rules 23(a), (b)(2), and/or (b)(3) of the Federal Rules of Civil Procedure, direct that reasonable notice be given to the Classes, and declare Plaintiffs as the representatives of the Classes;

B. Enter judgment against Defendants in favor of Plaintiffs and the Classes;

C. Grant permanent injunctive relief under Section 16 of the Clayton Act, 15 U.S.C. § 26, to remedy the ongoing effects of Defendants' unlawful and anticompetitive conduct, including requiring Defendants to cease coordinated supply restriction and to restore competitive conditions in the conventional DRAM market;

D. Award Plaintiffs and the Classes treble damages;

E. Award Plaintiffs and the Classes their costs of suit, including reasonable attorneys' fees as provided by law;

F. Award pre- and post-judgment interest as provided by law;

G. Award such further and additional relief as the case may require and the Court may deem just and proper under the circumstances.

JURY DEMAND

Plaintiffs demand a trial by jury on all claims and issues so triable.

Dated: June 25, 2026

Respectfully submitted,

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